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Edited by **HENRY C. PEARSON**—Offices, No. 150 Nassau Street, NEW YORK.

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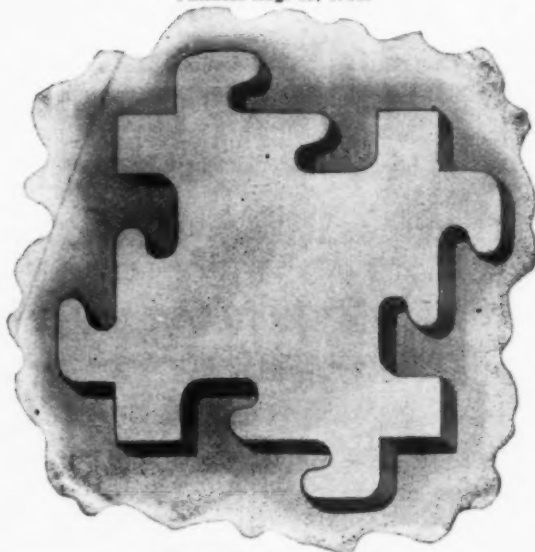
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WILL THERE BE TOO MUCH RUBBER?

IN view of the amount of rubber planting now in progress the question has been asked—and it is a very natural question—whether there is not danger of a new source of supplies being created, out of all proportion to the world's needs. In other words, whether the result may not be overproduction of rubber to a degree that will render the new planting interest unprofitable.

If the consumption of rubber were a fixed quantity, with a definite limit already reached, caution might be wise in the matter of providing new sources of supply. But this is not the case. The consumption of rubber in the United States alone has doubled within seventeen years, and from whatever standpoint the rubber industry may be viewed, it gives promise of a more rapid rate of expansion to come, with the many new uses of rubber, the growth in population, and the greater buying capacity of the people. The consumption has also become much greater in other lands, and there yet remains a large part of the world's population to become users of rubber goods. Within twenty years the production of "Pará" rubber has increased threefold, and meanwhile the present enormous supply from Africa has been developed. Yet such has been the increase in demand that prices have tended constantly upward, and market supplies are smaller to-day than for years past.

The natural supply of rubber, on the other hand, is limited. There is no longer any unexplored country in which rubber trees may be hoped to exist. There are forests known to contain rubber which have not yet been "worked," but these virgin fields are lessened in extent every year. The gradual opening of new fields is offset in part by the exhaustion of old ones. It is true that, under the more intelligent supervision now given to them, the existing rubber trees in Brazil and Bolivia, for example, may long be conserved. Still there must come a time when all existing natural supplies will be taxed to their utmost, and then, without new resources, the further growth of the rubber industry will be impossible. No date for this situation can be fixed, of course, but its imminence certainly appears to us to justify the planting of rubber.

Several millions of rubber trees have been planted, thus far, but so recently that only a few thousand have reached a productive age. It is not reasonable to suppose that all the others will reach maturity, for the reason that rubber planting is a new interest, and as such liable to its share of failures. The addition to the world's supply of rubber from the existing plantations will be made gradually, as each year's planting begins to yield, and is likely to be required by the growing consuming demand. The same consideration will apply to such planting as may be done for a good many years to come. It must be remembered that rubber can be cultivated successfully only within very restricted limits. The territory in which rubber might thrive is much wider, but the natural conditions preclude undertakings there by outsiders, and render the collection of wild rubber so difficult as to make the cost of the product sometimes \$2000 or more per ton.

It must be expected that, ultimately, the success of rubber planting will result in lower prices, but not necessarily to the disadvantage of the planter. We have quoted Mexican rubber lately at 68 cents a pound, which means \$1500, gold, per metrical ton. If rubber planting is going to succeed at all, it is not going to cost \$1500, or half of it, to prepare and market a ton of products, and at much lower market rates there ought to be a good profit. At the same time every material decrease in the cost of rubber is bound to give a new impetus to consumption. This page would not hold a list of the practical uses for rubber which are held in check to-day by the high cost of the raw material. But when people once become accustomed to a new use of rubber, in which they are encouraged at first by low cost, they do not give it up later if obliged to pay more for the article. A reasonable expectation, therefore, is that if rubber prices should, in time, be depressed materially from the present level, the effect will be such an increase in consumption as to check the fall and soon create an upward tendency. This sort of fluctuation may be the continual experience of future generations of rubber planters, but it is a consideration too remote for those who are engaging in the business to-day.

Finally, if the rubber planters are alive to their opportunity, they will produce an article superior to many rubber grades now marketed, and obtain better prices. Then, if the market should become overstocked, the last sorts to feel the depression will be the carefully prepared plantation products, which will be preferred by manufacturers at good prices to badly cured, dirt filled, and foul smelling rubber, collected by natives in their primitive way, and now used in the factory through necessity. It might be suggested that people have been cultivating rice and wheat and other crops, and making iron and cloth and leather, for some thousands of years, and that in none of these lines has overproduction ever resulted to such an extent as to render the work unprofitable, taken as a whole, or unprofitable anywhere for a long continued period.

A GERMAN ELECTRICAL TRUST.

THE German electrical industries have proved such an important factor in increasing the consumption of India-rubber that they must be taken into account in any estimate of the rubber industry in that country. The great modern electrical development began just in time to aid Germany in making a long step in industrial advance, and the fullest advantage was taken of it, thanks to the high degree of technical ability for which that country has become noted. The best ideas were drawn upon from every quarter, and not only has Germany supplied herself with electrical apparatus for countless uses, but her exports have supplied a great part of the outside world beside.

The very liberal profits of the leading electrical manufacturers—dividends on as high as 15 per cent. were paid on inflated capitalizations—naturally led to a productive capacity which, when a period of depression began, could not be kept profitably employed, and the result was the

sale of products at any price to secure business. On another page is noted a policy of consolidation of the leading German electrical firms, for the purpose of reducing capitalization, restricting reckless competition, maintaining prices, and taking the direction of business out of the hands of speculative interests—the outcome of which may be a lesson of value to the rubber industry as a whole.

The world will continue to need more electrical equipment, rather than less, all of which will call for more rubber for insulation, and it is to the interest of producers in every country that the industry everywhere should be on a conservative business basis—a sound capitalization and fair profits for everything sold. Under the new conditions in Germany, instead of many concerns competing for everything in sight, each factory will be devoted to supplying what it can best produce, and this degree of specialization may bring more satisfaction to customers and larger profits for manufacturers, without necessarily raising prices beyond reason. It all amounts to a Trust, however, and the biggest trust connected with the whole rubber trade.

THE BOLIVIAN SYNDICATE CHECKED.

THE latest advices respecting the Acre are that Bolivia consents to the military occupation and administration of the district by Brazil, pending a peaceful settlement of the question of ownership. Bolivia has considered her authority in this territory to have been formally recognized by Brazil, while the latter country asserts to the contrary. The population of Acre consists mainly of Brazilians who have ventured there in search of rubber; the country is next to inaccessible from the Bolivian capital; and its only outlet is through Brazilian waters which have never been declared open for navigation by other countries. So long as the rubber trade of this region contributed to the profits solely of Brazilians the latter felt little concern about its political control, especially as it was practically without government.

But no sooner was a concession of this territory granted to the Bolivian Syndicate, on terms which would divert profits to other channels, than protests were made by the government, the people, and the press of Brazil, which country is in a position to thwart any effort to exploit the concession. Bolivia being powerless to defend her claims with arms, her hope has been that diplomatic influence by the countries whose citizens are interested in the concession might be brought to bear upon Brazil in her behalf. Failing this, she must submit to arbitration the question of title to what was already presumably part of her public domain.

The immediate interest of the rubber trade in the matter lies in the prospect that the suspension of rubber gathering on the Acre since the dispute arose over the Bolivian concession may end soon. The production of this district at times has reached 2000 or 3000 tons per year. But any hope that, under the extensive enterprises planned by the Bolivian Syndicate, the rubber output from the Acre would be greatly expanded, must be given up for the present. There is no doubt that with improved transportation facil-

ities and better systematized supplies of labor and the necessities of life, the output of Acre rubber would be greatly increased and rendered more stable.

Now all enterprise in this direction is confined practically to individual efforts, under conditions most unfavorable for work on a small scale, by parties not combined in any way for the promotion of mutual interests. The only interest of each is to get out as much rubber as possible in a season, and at the end no improvement has been made in means of transportation, in sanitary conditions, or the provision of food—all of which might result from the efforts of a syndicate working with large capital, and with a view to continuous efforts for a long term of years.

The success of Brazil in her contention—and it often happens that "possession is nine points of the law"—will perpetuate indefinitely the unprogressive conditions of one of the largest and richest rubber fields known to exist. It will discourage the development of the Acre country with foreign capital, and domestic capital and domestic initiative in such matters do not exist there. With any question of indemnity claims by the *cessionnaires*, in case the Bolivian grant should be nullified, the rubber trade is not concerned. It is enough for the latter that the problem of shortening the route between the forest and the factory still remains to be solved.

RUSSIA MAY NOT BE PROGRESSIVE, according to our Western ideas, but she has been quick to appreciate the value to the world of her worn out rubber shoes, and now proposes to levy a duty on their export. A single discarded *galoch* is entitled to little respect, but there be subjects of the Czar who cannot afford to despise small things, and millions of old *galoches* gathered in a heap bring a lot of golden *rubles*. Based on the estimate of the Russian output of rubber scrap printed elsewhere in this paper, the new export duty will enrich the treasury by more than \$300,000 a year—which the foreigner will have to pay. This, by the way, is but a single illustration of the magnitude to which the business of reclaiming rubber has grown. And it is worth quoting in answer to the people who are continually inquiring whether some newly reported "substitute" does not threaten to drive rubber out of use. It ought to be plain that, if the best "substitute" yet invented has not been able to rival old rubber shoes, the producers of new crude rubber have little reason to fear for their occupation.

A MORE PERPLEXING PROBLEM than how to maintain rubber footwear prices perhaps never confronted any class of merchants. Always a necessity, since its first introduction, the rubber shoe has become more so this winter on account of exceptional weather. Besides, a pair of the best rubbers costs hardly as much as one physician's prescription. And yet there are dealers who are worried over the prospect of not being able to do business at a profit. Time was when some dealers threw rubbers away, for fear that if they charged fair prices somebody might undersell them. Then manufacturers adopted the rule of not selling to any jobber who would not insist upon retailers paying standard prices. The consumer, by the way, pays every time all that the retailer asks, rather than risk death from pneumonia. But the jobbers objected to the contract system, on the principle that, having bought a stock of rubbers, they owned the goods and were morally free to do with them what they pleased. Now that the manufacturers' re-

strictions have been withdrawn, some jobbers are fearful that advantage will be taken of the freer market by some other jobbers, to knock the bottom out of prices. Why not let them do it, and ruin themselves? There are few jobbers who do not sell leather shoes for more than somebody else is selling leather shoes for, and yet the jobbing trade as a whole grows and prospers. They sell leather goods at what they think are right prices and let the cheaper trade cut its own throat. Why not apply the same rule to rubbers? With all the snowstorms of this winter, one might expect the jobbers to feel tempted to charge even more than standard prices.

THE HIGHEST PRICED RUBBER IN THE WORLD, for some time past, has been the product of trees of the "Pará" species, under cultivation in Ceylon. This fact is of interest as proving (1) that cultivated trees will produce rubber as well as native ones; (2) that specially prepared rubber will bring higher prices; and (3) that, contrary to views formerly held by experts, rubber of the "Pará" species is susceptible of cultivation outside of the Amazon valley. On another page appears an interesting communication from a Ceylon planter who has prepared some of the rubber which is bringing "record" prices in London.

THERE USED TO BE A SPECIAL SCHOOL of statisticians who labored to compute the amount of money spent in playing golf. Now a wider field for their talent is afforded by the question, Where does the money come from to pay the fees on the ceaseless issue of golf ball patents? And where is storage room found for all the patent specifications relating to this line of invention?

AMERICAN RUBBER SHOES IN SCOTLAND.

BY THE UNITED STATES CONSUL AT EDINBURGH.

IN my annual report for 1899 [see THE INDIA RUBBER WORLD, October 1, 1900—page 15.] I ventured the suggestion that a good market might be found in Scotland for the American style of thin, close fitting rubbers, inasmuch as there was wet weather during more than half the year and, the temperature never being low, a light rubber was certainly preferable to the heavy British overshoe. It was noted that overshoes or rubber were only needed to protect the feet from dampness, and that they were worn by but few persons, probably because the British rubbers were too clumsy and uncomfortable. An agent of the United States Rubber Co., was here in the winter of 1899, surveying the business field, making close inquiry into the trade, and adding to the number of shops then handling its goods. The result has been remarkable. This comparatively new American enterprise has proved a great success, and the trade is rapidly increasing. Not long ago I was in the office of a wholesale house carrying these goods and was told by the manager that he had received orders that morning before 12 o'clock amounting to about 80 cases. This gives an idea of the substantial character of the trade. In the damp climate of these islands rubbers are, in fact, a common necessity, and it is likely that they will come to be so regarded, especially for ladies' wear, as the light and graceful American rubber not only affords protection, but is comfortable and looks well. The enormous productive capacity of the American rubber concerns enables them to sell their goods to the foreign wholesale dealers at fairly low figures, and if in point of quality the present high standard be maintained, there seems to be no reason why the market gained here should not become a permanent possession of our producers.—*Commercial Relations of the United States for 1901.*

ANDREW CARNEGIE ON RUBBER.

IT is now just thirteen years since this journal published an editorial article asserting that "The culture of rubber will soon be a live question," and, after reviewing the results of numerous experiments in different countries, that "the susceptibility of the trees to cultivation has been proved." The article concluded: "We call attention to this subject as one of interest not only to the rubber trade but possibly to some American capitalist who may see the importance of being a pioneer in the business of supplying the world with cultivated rubber."

Through all the succeeding years the subject of rubber cultivation has received constant and careful attention in these pages, with the result that the files of THE INDIA RUBBER WORLD will be found to contain more definite and accurate information on this subject than any other publication known to us. Indeed, in addition to a great amount of original matter, we have summarized all results of experimental and practical rubber planting reported in all other journals published. While we have not commended everything that has been done in the name of rubber planting, certainly the attitude of THE INDIA RUBBER WORLD has been one of encouragement to this new interest. It is not enough, however, that such a journal should report only favorable results, or reserve its mention of planting enterprises to those deserving of commendation. In a field embracing so many companies organized for promoting planting, it is natural that there should be some employing means to attract investors that are open to criticism.

For example, there are company prospectuses which, instead of dealing with known facts in rubber planting, give chief prominence to alleged expressions in behalf of their work by men widely known for their success in money making, though probably ignorant of the rubber planting business. The name of Mr. Andrew Carnegie just now is being widely used in this connection, in such paragraphs as the following, which has appeared in the prospectus of more than one planting company:

ANDREW CARNEGIE ON RUBBER.

"If you were a young man, and had your start to make in the world, would you take up the manufacture of steel?" was asked of Andrew Carnegie by a gentleman who met him on the train to New York after his last visit to Pittsburgh. The philanthropist hesitated a moment, then shook his head. "No," he said, "The best opening for a young man to-day is rubber. Rubber will, in a few years, make a greater fortune under present conditions than steel, or, in fact, any other branch of manufacture. The great value and manifold uses of rubber are just beginning to be properly appreciated, and the profits in its production are greater than almost anything about which I am informed." Mr. Carnegie then launched forth in a long discussion on the growth of the rubber trees, the best product, and the hundreds of uses to which it has been put, and even suggested a number of improvements that showed deep study on the subject. "Watch the men engaged in the manufacture of rubber," he concluded, "and as the years go by you will see them amassing splendid fortunes. The opportunities for young men are as great to-day as ever in the history of the world, and I firmly believe that rubber furnishes the greatest."

The above has been credited, in some cases, to the Pittsburgh Gazette of June 21, 1902, a search of which newspaper failed to show the lines quoted. A letter to Mr. Carnegie brought the following response:

TO THE EDITOR OF THE INDIA RUBBER WORLD: Yours of the 7th received. Mr. Carnegie has no recollection of making any statement such as that mentioned in your letter. See his remarks on the enclosure.

Respectfully yours, JAS. BERTRAM,

P. Secretary.

2 East 91st street, New York, 10th February, 1903.

The copy of the planting prospectus sent to Mr. Carnegie was returned, with these "remarks" penciled on the margin:

Not one word of truth in this. A fraud. A. C.

Space is given to the matter above, in the first place as an answer to several persons who have written to THE INDIA RUBBER WORLD to ask whether Mr. Carnegie actually has advised young men to become interested in rubber planting. In the second place, it seems proper here to suggest that the planting interest cannot be helped by the dissemination of false statements in regard to its possibilities. It must occur to many persons who receive such statements as that credited to Mr. Carnegie to inquire whether they are authentic, and the person who learns that the strongest argument advanced in behalf of an enterprise seeking capital is a manufactured endorsement, might very reasonably become suspicious, not only of all other statements made by the same company, but in regard to rubber planting as a whole.

SUCCESS IN RETAILING RUBBER GOODS.

A RETAIL rubber store was opened a few years ago in a New England town, where such an establishment had never before proved successful, by a man who felt that he saw the way clear to building up a paying business. He began in a small way, but worked hard and studied his field carefully, taking advantage of every opportunity for making a sale, and practicing every possible economy. The result for sometime was anything but encouraging, and he was more than once tempted to give up the effort. The business continued to grow, however, and in time became so profitable as to determine him to remain in it permanently. The field for the trade of his store was confined of course to its immediate vicinity, and after he had begun to feel that the limit for expansion was reached in this respect, he looked about for another locality, and, finding a satisfactory man, placed him in charge there of a branch store. This also in time developed success, which was followed by the establishment of one or two more branches.

The proprietor of this business has thus succeeded, not only in supplying three or four times as many customers as he could ever have in any one of the towns referred to, and making a profit on all of his trade, but he has benefited besides through being able to buy on better terms than the ordinary retailer, since by giving all his orders through the parent store he is enabled to get jobbers' prices. He tells THE INDIA RUBBER WORLD that from the beginning he has seen a gradual increase in the general consumption of all rubber lines which he carries in stock, and he feels confident that this increase will be continued. The town in which he is located is a manufacturing center, with many consumers of rubber goods on a scale sufficiently large to induce them to seek the manufacturer when important orders are to be given. But these same establishments have frequent need for rubber supplies on a small scale, and there is sometimes need for prompter service than could be had by dealing with the manufacturer, so that their orders come to the local store.

The gentleman quoted here believes that the opportunity for the retail rubber store in towns and small cities is as good as ever, and even better. He would advise persons going into the business to adopt his plan of combining two or more stores under one management, as he has done. But he would not recommend every one to try to sell rubber goods. The business is one which requires special preparation and special adaptability, and it is a much more difficult matter to secure suitable store assistants in the retail rubber trade than in dry goods or general stores, because they are less plentiful.

NEW PROCESS FOR WORKING BALATA.

IN a recent issue *The Argosy*, published at Georgetown (Demerara), British Guiana, contained some notes on the exploitation of Balata on the southern borders of Venezuela by French *concessionnaires*. About two years ago the Comte de Lichtenburg, a director of the Caoutchouc de l'Orinoco de Paris, and Dr. Frank Rouberol, an analytical chemist, proceeded to the Caratal district, in Venezuela, to exploit Balata under a concession which that company had secured there. Financial troubles having overtaken the company, these gentlemen proceeded to El Dorado, in the Uruan district (claimed by British Guiana before the settlement of the boundary dispute by the treaty of 1897). There they obtained extensive Balata concessions for a new French company, and, according to *The Argosy*, a considerable quantity of Balata had been prepared and was awaiting shipment to France.

Dr. Rouberol is reported to have installed a plant for the treatment of the *latex* of Balata by a special process, whereby the resin and glucosides are removed, and a gum of unusual value obtained, in the form of either sheets or blocks. The hope is entertained of producing Balata worth 8 shillings per kilogram [=88 3 cents per pound.] The gentlemen named were on their way to France, with a view to procuring a more extensive mechanical plant after the subsidence of the troubles which now interfere with business in Venezuela. Balata is reported to be plentiful in the Uruan district, but the *latex* is obtained by destroying the trees. The available laborers, however, are most unsatisfactory.

OFFICIAL NONSENSE ABOUT BALATA.

THE INDIA RUBBER WORLD has received some inquiries as to whether it would not be wise to cease any efforts in the direction of cultivating India-rubber, on account of certain information made public in a recent report by the United States consul at Pará, Mr. Kenneday, in relation to somebody in Brazil who has "brought a concession and has lately begun the practical work of producing Gutta-percha for the market." The consul says further: "As in the case of rubber, there is practically no limit to the supply of Gutta-percha on the Amazon, and as it can be produced at a fraction of the cost of rubber, it offers a much higher percentage of profit." Consul Kenneday makes use of a report by a man described as an expert in the management of Balata estates, and who asserts that Balata trees have been found by him all over the states of Pará and Amazonas, while he is informed that vast areas of them exist on the Purús and Acre and other tributaries of the upper Amazon. He says that for more than thirty years the Balata trade has been carried on with immense profit in the Guianas and on the Orinoco, but that those fields are now almost exhausted and little is being shipped. Balata, he thinks, can be produced on the Amazon in unlimited quantities, and of a quality "if not better, at least, as good as the Guiana Balata." Further, he says, "these trees yield many times as much sap as the rubber tree, and one man can easily produce as many kilograms of Gutta-percha in a day as twenty men can extract of rubber. The trees will average 3½ pounds of Gutta-percha each, and a competent bleeder can prepare 40 or 50 pounds per day. The gum is first fermented and then dried in the sun, after which it is ready for shipment."

"I am surprised," writes Consul Kenneday's informant; "to find that this valuable gum, which is so easy of access and so cheaply prepared for market, has never become known to the trade here." THE INDIA RUBBER WORLD is surprised that

any government on earth, sufficiently advanced in civilization to maintain a consular service, will permit the publication under its official sanction of such "tommy-rot" as makes up this report from Mr. Consul Kenneday. Samples of this so called Balata from Brazil reached THE INDIA RUBBER WORLD about a year ago, and an opinion in regard to the same appeared in our issue of January 1, 1902, on page 111.

* * *

IN relation to the so called Brazilian Balata, the following letter comes to us from a highly respected source, in the rubber trade at Pará:

TO THE EDITOR OF THE INDIA RUBBER WORLD: In reply to your inquiry about the production of Balata in the Amazon valley, we beg to say that of late we have heard of several parties who are studying this matter here, but so far we have not yet heard that they were successful. It is true that there exists here a tree, which is said to be the Balata tree, but so far no positive result has been obtained by working it. We further may add, that we have known of the existence of this tree for some years, and have also sent samples of the stuff contained in the tree to the United States and to London, but it was not judged satisfactorily. Considering the failures to date, we are rather sceptical about the probability of Balata ever being produced here, though perhaps it is with the tree as with the rubber trees, which grow very well in many places, but do not yield what the same yield here.

Pará, Brazil, January 9, 1903.

— & CO.

WHAT BECOMES OF ALL THE BALATA?

A WRITER in London *Engineering*, speaking of the continued increase in the production of Balata in the northern districts of South America, remarks: "What becomes of all the Balata at present shipped from Bolivar is a matter—almost indeed a mystery—which has exercised the minds of a good many people, because its applications are neither numerous nor extensive. We are not prying into trade secrets, but it may turn out that the prevailing idea in British Guiana, that the Balata shipped goes for the submarine cable manufacture in England, is not wholly beside the mark, though we are aware that it has been expressly stated by British experts that Balata cannot replace Gutta for this purpose. The bulk of the Balata produced goes to Europe, the United States apparently not having found any extended use for it. The States, it must be remembered, do not make their own deep sea cables—a rather sore point with some of the senators, nor do they supply the full home demand for golf balls: facts which may or may not have a connection with the much greater demand for Balata in Europe than in America. Hamburg, Rotterdam, and London are the principal ports of arrival, the large amount received at the first named place being, no doubt, explicable by the fact of German firms being chiefly interested in the Venezuelan production."

The same writer speaks of the important consumption of Balata in the manufacture of belting by R. & J. Dick & Co. (Glasgow, Scotland), under a patent granted to the late Robert Dick, which mentioned Gutta-percha, Balata, and canvas specifically. "Probably," he says, "though it is but conjecture, Balata is used more for its cheapness than for any special advantages it shows over Gutta-percha, the former, although fluctuating in price, never having exceeded 2s. 6d. per pound during the last couple of decades. The present quotation, it may be said, is rather under 2s. per pound; and although, as we have indicated above, there is plenty of material to draw supplies from, the expenses of collection in somewhat inaccessible districts, coupled with the scarcity of labor, will continue to react against any considerable reduction of price."

THE ADULTERATION OF GUTTA-PERCHA.

A REPORT on an investigation of the sources of Gutta-percha, made at the instance of the Syndicat d'Études et d'Enterprises en Malaisie—a Belgian enterprise—has been contributed by M. Octave J. A. Collet, a member of the commission, to the *Bulletin de la Société d'Études Coloniales*. After detailing visits to the Gutta-percha producing regions, and reporting upon the species and number of trees found to exist in them, M. Collet devotes considerable attention to the practice of adulterating Gutta-percha by the Chinese traders at Singapore, bringing out some facts not before generally known. This section of his report is summarized in the paragraphs which follow.

In Sumatra, and in general in all countries yielding this material, the extraction of Gutta-percha is accomplished by the felling of the tree. In the prostrate trunk annular incisions are made in the bark, at intervals of about 12 inches, which quickly become filled with the creamy *latex*. Within a half hour much of the watery contents of the *latex* will have run off, after which it is easy to remove the gutta by taking the coagulated material in hand at one end of the channel cut in the bark, and rolling it up into a ball. The gutta is then boiled and molded into shapes which differ according to the region of production. By this crude process a considerable loss of *latex* results, not only on account of what falls upon the ground, but also because the bark of the felled tree, being inaccessible underneath, yields only part of the gutta contained in it. The gutta which flows into these incisions made in the bark always carries away with it fragments of the latter.

There are numerous species of Gutta-percha trees, yielding different qualities of gum, and their careless mixture by the native collectors explains in part the infinite variety of the products put on the market, even from the same district. These mixtures are most prejudicial to the quality of Gutta percha, rendering the working of it in the factory more difficult, and its deterioration more rapid. These defects are further produced by adulteration with foreign matters, which are kneaded into the gutta after it has been placed in hot water and softened.

By different routes almost all of the Gutta-percha, produced as it is mostly in the Dutch Indies, is concentrated at Singapore. In this town are the storehouses of the Chinamen, who hold almost a monopoly of the gutta trade. The most shameless adulteration takes place here, to such an extent that any quality asked for by the buyer is produced at will. It is impossible to determine the original quality of guttas contained in the "reboiled" goods of Singapore. Although it is very difficult to visit the establishments in Singapore where the manipulation of gutta takes place, the mission has been able to inspect almost all of them, it being believed that we had no commercial interest whatsoever.

The operations are extremely simple, and require only the most primitive outfits. A large caldron, about 60 inches in diameter and 20 inches in depth, is placed over a brick hearth, reminding one of the wash kettles of European laundries. Besides, some long sticks and shovels are required for turning and kneading the gutta and to take it out of the boiling water, and some rectangular molds formed of four boards, and a lid or a cover of wood on which weights are laid to hold it in place.

Into the caldron, filled with boiling water, are thrown pieces of gutta, cut or refused by the buyer; gutta already in decompo-

sition and beginning to emanate a characteristic odor; remnants of Caoutchouc; gutta of almost no value whatever and harvested only for use as an adulterant; and, finally, in proportions determined according to the quality to be obtained, good gutta of such and such origin, according to the type desired. These having been boiled together, the resulting mass is removed from the caldron and placed under a board, on which two men stand, expressing with their weight any excess of water. The mass is also thus flattened, after which it is folded up and again pressed, this operation being repeated until the product takes on a very uniform appearance.

Finally, the gutta is introduced into the primitive mold already described, under the weighted lid, and left to cool off. This series of manipulations gives to the gutta the looks of a light pasty cake. Many different shapes may be given to the mold, however, and the cakes formed may be cylindrical, cubic, or oblong, according to the original quality one wishes to obtain, and of which the exterior shape is imitated.

The Chinese are and always will be the necessary intermediaries between the natives and the buyers of Gutta-percha, because they only can employ the necessary time, they can travel cheaply, and through their fraudulent maneuvers they know how to keep the native to the delivery of the harvested gutta. Called upon to furnish, in constantly increasing quantities, a product with which very few Europeans possess a thorough acquaintance, the Chinese gradually have substituted inferior guttas for good grades. Indeed, the latter hardly exist any more; the lower qualities having become first choice, guttas are sold now that formerly were deemed wholly worthless. One may say that pure Gutta-percha is a myth.

The exportation of Gutta-percha from Singapore, which in 1844 amounted to the modest total of 100 kilograms, passed ten years later 628 tons, to arrive in 1860 to 1820 tons, in 1874 to 1290 tons, in 1884 to 3000 tons, in 1894 to 2500 tons, and in 1900 to 5831 tons.

From these figures it will be seen that the exportation is following an upward tendency, in spite of the destruction of the producing trees. The reason is that under the name of Gutta-percha the most singular products are now exported. It must be admitted, however, that the demand for gutta has led the natives to penetrate into the remotest virgin forests of Borneo, Sumatra, and the Malay peninsula. The apparent increase in production, indicated by the much confused statistics of Singapore, which embrace true and inferior guttas, in spite of the diminution of the sources, is easily explained. The proportion of impurities mixed with the gutta is augmenting year by year. The falsification is even taking a scientific form; for some months a plastic gum, probably Balata, has been imported from London for this purpose. In what other way can the fact be explained, which has so vividly struck us in the course of our journey to Johore, where we saw the Chinese buy pure Gutta-percha at \$8 (silver) per catty [=1½ pounds], which brings the price per kilogram up to 33 francs? What an amount of adulteration is needed to reduce the later selling price 30 to 40 per cent. below the above figure, and to still yield a certain profit. Besides, this simple fact is confirmed by reading the statistics of Singapore. This town produces no Gutta-percha, and receives the same only in transit. Yet the exports exceed the imports by at least 25 per cent.

The imports and exports of Gutta-percha at Singapore dur-

ing five years have been compiled by M. Collet as follows [the figures referring to values in silver]:

	1895.	1896.	1897.	1898.	1899.
Imports, ...	\$2,408,048	\$2,572,567	\$2,979,439	\$5,645,277	\$8,799,427
Exports,	5,068,217	3,455,905	5,949,560	7,295,596	10,147,457

While these figures are only of a relative value, account must be taken of the fact that they refer to one special product, whose only market is Singapore, and that the same coincidence of largely increased exports over imports repeated itself consecutively and regularly. It is impossible to form an exact idea of the prices of Gutta-percha. For each kind of Gutta-percha there exists a scale of prices for the designations "good," "medium," and "ordinary." According to the variety, prices range from \$5 per picul [=133½ pounds] for Gutta-jeletong (known in Europe by the name of Dead Borneo) up to \$450 for the Bila prime red, or \$600 per picul for the fine Pahang red, in passing through the whole series of Sumatra, Borneo, Pontianak, etc. It is impossible to establish an average.

A DUTCH CONSUL ON GUTTA-PERCHA.

THE importation of Gutta-percha at Singapore in 1901 was much smaller than in 1900, according to the Dutch consul general at that port, Heer J. C. T. Reelfs. The imports are stated thus [weights in piculs of 133½ pounds]:

FROM—	1900.	1901.	FROM—	1900.	1901.
Sumatra	38,799	28,134	Tringanu	539	708
Dutch Borneo...	13,911	17,061	Java	4,254	624
Sarawak	5,053	3,747	Dutch archipelago	397	402
Sula islands	211	1,966	Various	1,022	1,347
Penang	6,078	1,843			
Brit. N. Borneo..	1,756	1,681			
Pahang	909	904	Total	74,066	59,330
Labuan	1,137	853	In pounds	9,875,467	7,910,667

In accounting for the disposition of this material, Consul General Reelfs gives only partial details. He mentions exports to Great Britain in 1900 of 77,465 piculs [=10,328,667 pounds], and in 1901 of 55,777 piculs [=7,436,933 pounds], or an amount equal to the total imports for the two years. But there were also dispatched to France in the latter year 7793 piculs, to Germany 5383 piculs, and to the United States 2797—a total of 71,750 piculs [=9,566,667 pounds] or 12,420 piculs more than the total imports for the same year—not to mention some minor exports to other countries.

There is also imported into Singapore, principally from Dutch Borneo, besides Gutta-percha proper, a large quantity of "inferior gutta," part of which, he says, is treated at Singapore, but which mostly is shipped in its original state. Of this material the import increased from 117,628 piculs in 1900 to 149,396 piculs in 1901. Exports of "inferior gutta" during the two years were as follows:

	1900.	1901.
To United States ..	piculs 59,059	121,303
Germany	3,383	11,176
France	6,152	9,655
Great Britain	24,945	9,487
Total	piculs 93,539	151,621

These figures alone, while not conclusive, do go to confirm the contention of M. Collet, in the foregoing paper, that more alleged true Gutta-percha is shipped from Singapore than is imported there. That guttas do gain an enhanced value at Singapore is further indicated by the following official statement of values (silver) for two years:

IMPORTS.	1900.	1901.
Gutta-percha	\$10,929,327	\$ 9,889,583
Inferior gutta	1,025,513	1,109,015
Total	\$11,954,840	\$10,998,598
EXPORTS.		
Gutta-percha	\$14,359,263	\$14,427,589
Inferior gutta	790,224	1,406,919
Total	\$15,149,487	\$15,834,508

Heer Reelfs finds it difficult to compile prices of Gutta-percha, owing to the innumerable grades or qualities offered. Published quotations are practically the same all the time. Their range during 1901 was [in silver dollars per picul of 133½ pounds]:

MONTHS.	1st. Quality.	Medium.	Lower.
January ..	\$400@ \$600	\$300@ \$450	\$50@ \$200
February ..	460@ 600	300@ 450	50@ 200
March-May ..	430@ 570	270@ 420	40@ 190
June-July ..	420@ 560	250@ 410	40@ 180
August-November ..	475@ 600	300@ 450	50@ 200
December ..	450@ 550	300@ 450	50@ 200

The report concludes with a favorable review of the efforts of the various governments in control of the Gutta-percha producing districts to conserve the native trees.

A RELIABILITY CONTEST FOR TIRES SUGGESTED.

By S. Bradford Coggeshall.

THE recent reliability contest of the Automobile Club of America, from New York to Boston and return, as everybody knows, proved a tremendous success. From all sides congratulations and commendations poured in upon the club and its committees. One of the changes in the regulations, and one which was heartily approved by every one, was a new rule which placed all stops caused by tires on the list of stops to which no penalty was attached, and allowing all time lost by tire causes to be deducted.

The tire itself being no part of the propelling equipment, there is certainly no reason why the record of the motive power should suffer for tire troubles. But since the tires are necessary to the operation of the vehicle, and the reliability of the tires an essential feature, it would seem reasonable for a report on a reliability run to cover every detail instead of only a report on reliability of the motive power. The object of the run obviously is to give the intending purchaser of an automobile—whether he be one of the interested public or an enthusiast in

search of a better machine—an idea of the relative ability of machines to do various kinds of work. Certainly the tires are essential to the proper performance of this work. It is harder for the novice to judge of a set of tires than of the vehicle itself. He is forced to take the advice either of his dealer, which is liable to be prejudiced by considerations of price, or of some friend, whose experience must necessarily be limited, both as to makes of tires and the number of sets of each make that he has become familiar with.

Where more than one brand of tire was used by any one kind of vehicle, these data would, of course, be most valuable. In cases where a difference in the kinds of vehicles somewhat varies the conditions, the classification of the vehicles by weight makes this difference a small factor. The care used by the individual operator of the vehicle in starting and picking his road, as well as his control of the speed, has more influence on the wear on the tires than a difference of several hundred pounds in the total weight of load. Tires, therefore, used on

the same class of vehicles would be as nearly under same conditions as it is ever possible for tires to be. A separate tire testing contest might have much influence, but the one lately held in England was of little value because of the limited number of makes of tires entered. But the value of such a test, even when more representative, could never equal the value of a complete report on the tires of a reliability run.

There can be no doubt in the mind of any one who watched the endurance runs of the past, and who followed the progress of this year's run, that great improvement has been made in the matter of tires. This has been due in great measure to advances in the art of tire making—in the compounding of rubber for tires, in improved (because stronger) tire fabrics, and in details of designs of tires. But another thing has contributed no less to this favorable result, namely: the automobile manufacturer is beginning to see the reasonable side of the tire manufacturers' point of view. For several years the rubber manufacturer has been told to finish the tires "as ordered," and in far too many instances the order was based solely upon price. The tire maker, knowing as he does that the average vehicle uses up several sets of tires, has an even deeper interest in the success of his product than the automobile manufacturer has, since a good showing in the matter of tire efficiency will secure for him the renewal trade, while a failure will be sure to induce

the user to change. With this idea in mind, the various tire manufacturers have conducted extensive tests, the results of which, added to the information secured from customers, have given them a fund of information more comprehensive than that of the automobile manufacturer himself. This puts the tire man in a position to furnish the automobile manufacturer with the tire best suited to the requirements of the latter. The question of diameter of tires should always be left to the tire manufacturer, and in many cases the diameter of wheels would be altered if he were taken into consultation.

Although anything like exact data bearing upon tires was entirely lacking in the late run, it is a fact that no other line of progress in the field of motor vehicle manufacture was so apparent to the veteran of former runs, as the improvement in tires, evidenced by the lack of tire trouble. Almost as conspicuous was the ease with which tire repairs were effected, and the lack of the old exhibitions of dread displayed by the operators of the contesting vehicles as they set about a job of repairing punctures. A certain degree of satisfaction must be felt by every manufacturer of automobile tires in the United States at so creditable a showing, and every effort should be made to induce the Automobile Club of America to include in its records in future a detailed report on the work done in all its runs by the different tires entered.

SOLID vs. PNEUMATIC TIRES IN FRANCE.

By J. W. Perry (Paris).

THE automobile industry has brought about a revolution in many branches of trade, and developed in certain of them a perfection of manufacture that, a few years ago, would not have been thought possible. The automobile itself has become more than a "horseless carriage," and is no longer regarded as a toy or a pleasure vehicle; it is already a necessary and important agency in the transportation of passengers and goods. The rapid progress by the makers of automobiles in the perfecting of their motors has awakened new life in many industries by creating new demands for their products. The industry which has received probably the greatest impetus and the most benefit, though it has been forced into its present satisfactory position, is the rubber manufacture.

The development of high speed in automobiles was retarded for a time by the lack of a suitable tire to carry the vehicle. But when rubber manufacturers realized what was required of them they bent to their work, and, sparing neither material, time, nor money, brought out the tire which to-day is accepted as the standard all over Europe and largely in America. To the two great pneumatic tire manufacturers of Clermont-Ferrand (France) is due much of the credit for this progress.

In the incipency of the automobile industry these vehicles ran upon steel tires, and a little later a few of the more courageous *chauffeurs* tried the "Clincher" solid tire, which, although rolling out of the steel rims every few hours, were nevertheless accepted as better than steel. This held good for automobiles while the maximum speed remained at 15 to 18 miles per hour. But when motors were built to run at 25 and 30 miles an hour, the *chauffeur* felt the need of something more resilient than a solid tire, and the pneumatic was tried. The début was made with a section of 65 millimeters [$=2\frac{1}{2}$ inches], and as vehicles were made heavier and ran faster, larger sections were experimented with and adopted, until to-day a section of 120 millimeters [$=5$ inches] is widely used in France. This was the turning point as between solid and pneumatic tires. As soon

as the public became assured that a "pneumatic" permitted greater speed and more comfort, they discarded the solid tire. It may be said that this transformation occurred between the years 1898 and 1899.

No automobile manufacturer in France to-day thinks of talking to a solid tire maker relative to making yearly contracts. They are no longer used except, on rare occasions, on heavy trucks. But the making of annual contracts for pneumatic tires is one of the important problems to the automobile builder. The use of pneumatic tires in Paris has become epidemic. At first, owing to their high price, only automobile owners could indulge in the luxury of pneumatic tires, but since competition and improved methods have lowered the price, the number of users has increased enormously. The contagion attacked the *fiacre* (four-wheel cab) owner two years ago, and to-day he "has it as bad as any one."

There are about 17,000 cabs in Paris, only about 10,000 of which are in active service and pay city license. Four years ago there were all told about 6000 *fiacres* with rubber tired wheels—about 5800 with solid and 200 with pneumatic tires. On January 1, 1903, there were between 450 and 500 with solid tires and about 4000 with pneumatic. The other 1500 which formerly had solid tires have gone back to steel. There are tire contractors in Paris who will fit up a cab with "clincher" solid tires and rent them at 27 francs [$=\$5.40$] per month, and these contracts are made for two or three years, which accounts for there still being 450 to 500 on the streets of Paris. When these contracts shall have expired, the contractor intends to replace them with pneumatic.

Several American houses have attempted to introduce solid tires in Paris, but the attempts proved unprofitable and have been abandoned. The "wired on" solid tires proved even less successful than the "clincher" solid. The peculiar flint gravel which is scattered over the Parisian pavements uses up the solid tire and wears it out as if a file had been used on it. In

my personal experience I have never known a wired-on tire to last more than 8 or 10 months on a public cab. The contractor who rents out his "clinchers" tires at 27 francs per month can get 12 to 14 months wear out of them. This additional wear is due to the fact that the rubber is made of special form and contains 37 kilograms [=81½ pounds] per set of four wheels, while the wired-on tire requires on an average of only 27 kilograms [=59½ pounds].

The makers of wired-on tires could put in 37 kilograms of material, also, and get more wear, but as they do not rent their tires, but sell them outright, the prices at which they would be forced to sell would make their use prohibitive. Some one may say that the cab owner pays a high price for the "clinchers" tire when he pays 27 francs per month for 12 to 14 months, and that the wired-on would not be any dearer in the long run. This argument will not hold good, as anyone will understand who will notice the class of cabs mounted with solid tires. The cab with solid tires is generally ill kept, the horse is half fed, and the *cocher* ill dressed and surly. This combination generally means "insufficient capital and inability to pay"; therefore, they rent their tires. No self respecting cab owner will rent tires, as he prefers to be his own contractor and get all the benefit there is in the business for himself.

There are two good reasons why the cab owners have adopted pneumatic tires: (1) they last longer, and (2) they are more sought after by the clients. It may be difficult to convince some American readers that pneumatic tires outlast the solid, but the best proof of this statement is their general adoption by cab owners. A set of four pneumatic tires will last (with ordinary care) 13 months for front wheels, and 15 for rear wheels. When the tires are on cabs of a coöperative company they will last 15 months on the front wheels and 18 on the rear wheels. A tire may pick up a nail once in a while, but this puncture is quickly repaired by a workman on the company's premises.

Prices of pneumatic tires in Paris have fallen to 400 francs [=£78.20] for a set of four, including four wire wheels with steel hubs turned up to fit the stub of the axle, and the whole mounted on the cab. This same outfit two years ago sold for 750 francs [=£144.75]. This great reduction in price has made pneumatics cheaper than solid tires. The cab owner does not feel the outlay, because it is the public that "pays the freight." There are very few owners of a single cab; most of them are owned by men who have from 20 to 100 cabs, which they rent by the day to responsible *cochers*. The average rental without rubber tires is about 15 francs [=£2.90] per day, with the privilege of changing horses once during the day. If the cab has pneumatic tires the price is from 2 to 3 francs more, or \$3.28 to \$3.47 per day. Cabs with solid tires are rented to the *cochers* at the same rate as the steel tired wheels.

The Parisian is now accustomed to wait until he finds a metal wheeled cab before he gets in. Nearly all pneumatic tires for cabs are mounted on wire wheels. The Parisian is evidently of the opinion that pneumatic tires on wood wheels do not give the same comfort as on metal ones. The pneumatic tired cab is always busy, and loads oftener, and the Parisian is more liberal with his *pour boire* than he would be if he used a steel or solid tired cab.

It is expected that there will be about 6000 pneumatic tired cabs in Paris by the end of this year, and if the two large cab companies adopt them, a cab on the streets of Paris without pneumatic tires will become as great a curiosity as was the first cab that appeared with pneumatics. This will simply be history repeating itself, for it is only a few years since great excitement was created by the appearance of the first automobile

with pneumatic tires. To-day it is the automobile with solid tires that excites comment. So it will be with the *fiacre*. The carriage builders and owners of private carriages are also fast adopting pneumatic tires, which are put on in a neat manner by doing away with the wooden fellies; then metal sockets are slipped over that part of the spokes that were in the felly, and the pneumatic tire rim is screwed onto these sockets from the inside of the rim. This makes a neat job and a graceful one.

To resume, and to prove that the solid rubber tire is destined to disappear, I may say that, in round numbers, the total amount charged out for solid tires in 1902, by all makers, was about \$250,000, while for pneumatics for carriages and automobiles the amount was about \$3,500,000. I think these figures are sufficiently eloquent to tell their own story.

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AUTOMOBILE TRADE OF FRANCE.

THE value of exports of automobiles from France during three years past, as officially reported, has been as follows:

	1900.	1901.	1902.
Francs.....	9,417,000	15,782,000	30,251,000
U. S. money.....	\$1,817,481	\$3,045,926	\$5,838,443

These figures, however, are not based upon selling prices, but result from the French government's official appraisal of motor vehicles in bulk at 10 francs per kilogram. It is asserted that the actual export values were considerably higher than shown in the official returns. At a recent dinner given in his honor by the Automobile Club of Great Britain, Baron Rothschild stated that seventy concerns, with 45,000 employes, are manufacturing automobiles in France, while if all the manufacturers of accessories were considered, employment is given to 180,000 people. The tire industry alone is of great importance. Baron Rothschild said that \$3,000,000 worth of tires were sold last year by one house, and several hundred thousand dollars worth by the smaller concerns.

SUBMARINE CABLES OF THE WORLD.

THE total length of submarine cables now amounts to over 200,000 nautical miles. Charles Bright, F. R. S. E., in a recent address before the London Chamber of Commerce, stated that they represented a total investment of about £50,000,000, while the present market value of their combined capital largely exceeded this figure. The cable construction and shipping output of Great Britain is about 100 nautical miles per day. The cost of construction to-day may be roughly estimated at £150 per mile. The cost of laying may be estimated at half as much again. A cable carefully manufactured and laid, if the conditions of the sea bottom be favorable, should be expected to last 30 years or more. It might be kept in operation indefinitely by the successive replacement of parts. The cost of maintenance is usually put down at £6 to £8 per mile per annum, though the possibility always exists that heavy expenses may be called for, for repairs. Deep sea cables have generally proved very remunerative. About 6,000,000 cable messages are now sent in a year, the number having increased out of all proportion to the increased mileage of cables.

In regard to the use of India-rubber as an insulator, Mr. Bright said: "Lest the scarcity of Gutta-percha should be seriously considered, attention may be called to the fact that a very considerable length—somewhere about 2500 nautical miles—of cable insulated with vulcanized India-rubber has been worked through for years, and is doing good service. India-rubber is superior to Gutta-percha for tropical waters infested with teredoes, or sword and saw fishes, such as abound in moderate depths."

THE INDIA-RUBBER TRADE IN GREAT BRITAIN.

By Our Regular Correspondent.

I THINK the trade outlook for the present year is certainly brighter than could have been predicted a year ago, for the months that have passed. Although there are no new works to record, at least none of any magnitude, more than one existing firm have gone in for large extensions.

IMPROVED
TRADE
PROSPECTS.

In this connection may be cited Messrs. W. & A. Bates, Limited, of Leicester; The Avon India-Rubber Co., Limited, of Melksham; and the Irwell Rubber Co., Limited, of Manchester. Trade is proceeding in well worn channels as far as the bulk of manufactures is concerned, though special mention ought to be made of the bootheel pad, which is now being manufactured very largely as a novelty and in which a large trade is being done. To people who habitually wear down their bootheels while the soles retain their pristine vigor, no doubt the purchase of a couple of these pads represents a profitable investment, the expense being about a shilling. There are numerous registered patterns on the market, the differences being in shape and in the method of attachment to the leather. So far it cannot be said that the winter has been such as to make the heart of the dealer in rubber boots and shoes rejoice; except in one or two districts there has been no fall of snow worth mentioning. This class of business is still limited to two Scotch firms, the North British and the Victoria company, and the Liverpool Rubber Co., although to judge by the price lists sent out by other houses one would imagine that the number of *bona fide* manufacturers was larger. Reports from waterproof garment makers are still couched in despondent language, as far as rubber proofing is concerned, and the expected revival is somewhat slow in its appearance. There seems to be little doubt that the department which will absorb a largely increased amount of rubber this year compared with preceding years will be that dealing with motor tires, as Great Britain is rapidly increasing her output. The remarks made recently by the chairman of The New Grappler Pneumatic Tyre Co., Limited, with regard to the rapid increase of business during the last three months of the year, strongly support this prediction.

"FOR tubing for chemical purposes we look upon acid and alkali as the same thing." Thus spoke a rubber manufacturer to me the other day, and I could not help thinking that the broadness of his views must militate somewhat against the success of this particular branch of his trade. The question of tubing for chemical works has become of some importance, and it surely behooves those manufacturers who essay to supply the demand for particular purposes that they should post themselves up to some extent on the subject. At the same time, as they rarely have an opportunity of seeing the tubing in use, it is not surprising that they are inclined to be somewhat credulous when they hear of its value. Keeping, however, to the point of acid and alkali, it ought to be remembered that rubber which would work well with dilute acids might prove very unsatisfactory with concentrated alkali, especially if it contained more than a small proportion of substitute. Then it must be remembered that the acids vary a good deal in their action. A tubing might withstand dilute sulphuric or hydrochloric acids for a long time, but soon come to grief if used for conveying nitric acid, even in a very dilute form. It would certainly seem desirable in answering queries as to chemical hose to inquire par-

CHEMICAL
TUBING.

ticularly as to the purpose for which it is intended and to select the mixing according to the lights of experience. I believe that the Dermatine Co. have paid special attention to this matter of hose for chemical works, to judge by the order books of certain prominent chemical works. It would be an unkind thing to attempt to class brewer's hose with chemical hose, although it is undeniable that chemicals of one sort and another do find their way into beer in this age of the advancement of science. With regard to brewer's hose, however, it may be pointed out that although a good deal of it may be used in connection with the beverage which we will allow to consist of malt and hops, yet a good deal is bought for yard or cleansing purposes and this strictly comes under the definition of chemical tubing.

SOME twelve months ago I referred to the fact that the use of rubber by British locomotive builders had practically died out; that is, as regards the engine fittings apart from continuous brake connections. Some new regulations of the Board of Trade may, however, give a fillip to the use of rubber in a certain direction which it may be of interest to mention. Under the new powers of the Railway Employment (Prevention of Accidents) act, 1900, it has been laid down that all locomotive engines, except those used exclusively for shunting purposes, ought to have power brakes in addition to hand brakes. This refers especially to goods and coal engines, and is to come into operation two years hence. The choice of brake lies practically between the steam brake and the Eames vacuum, in the latter of which a thick rubber diaphragm is used. From what I hear in the district of Newcastle-on-Tyne, so prominently associated with the evolution of the locomotive, the Eames brake, which is of course of American origin, is likely to come into increased use. There seems to have been considerable trouble, by the way, with the diaphragms as originally imported from America, trouble which has not been experienced with those of British manufacture. Of course this statement is only given for what it is worth, as it is quite possible that more extensive interviewing might produce opinions which would serve to neutralize it if not altogether to nullify it. With regard to the recommendations of the railway department of the Board of Trade, it should perhaps be mentioned that they are not obligatory, like acts of Parliament, but any neglect to observe, renders the railway companies liable to penalties if any accident can be attributed to their disregard.

IN a recent issue of the *Journal of the Society of Chemical Industry* I note a pretty full abstract of a paragraph which Dr.

PARAFFIN WAX
IN ELASTIC THREAD.

C. O. Weber contributed to our London contemporary on this subject last November. Although the detailed explanation of the effect of the wax may undoubtedly prove useful, it can hardly be said that there is anything particularly novel in the communication. Those who are engaged in the elastic webbing trade, which is so largely carried on in the vicinity of Derby, Leicester, and Nottingham, know that the custom of lubricating the cotton threads with paraffin wax during the weaving process is a very old one. In an important lawsuit tried at the Liverpool assizes twenty years ago, arising out of a claim for decayed elastic webbing, a good deal of scientific evidence was given with regard to the use of paraffin wax, and it was pretty clearly

shown that danger attaches to the use of wax of low melting point, this naturally having a greater tendency to soften the rubber and accelerate atmospheric oxidation. A good deal of the scientific evidence which is to be found detailed in the two bulky volumes of transcribed shorthand notes of this trial would prove somewhat amusing "copy" if printed to-day, but we must be charitable and remember that our knowledge of the chemistry of rubber is quite of recent date. Cases of premature decay of elastic webbing were at one time more common than is the case at present, and in a great measure this had an influence upon the decline in favor of the elastic side boot. No doubt the use of copper mordants in dyeing the black cotton thread had a good deal to do with the trouble that arose; I don't know much about the practice prevailing at the moment, but seven or eight years ago I found a considerable amount of copper in some black elastic webbing that formed the subject of a complaint.

I HAVE it on good authority that it is proposed to establish at the Manchester School of Technology a very complete set of apparatus for testing dielectrics. The proposal is to go to 100,000 volts, a current considerably stronger than is obtainable anywhere in England at the present time. The school authorities hope to secure the coöperation of the local cable makers in this project, though as to what is the exact prospect of success in this direction I am at the moment unable to hazard a conjecture.

AT the Stanley automobile exhibition, in January, a good deal of comment was aroused by the prominent notice to the effect that the Maison Talbot were appointed sole London agents for the "Clincher-Michelin" tires, though no information was obtainable from officials of the North British Rubber Co. The Maison Tal-

bot, it may be said, is connected with the Shrewsbury-Talbot Co., which has houses in Paris and Italy. In connection with this notice, it is understood that an arrangement has been made between the North British company and Messrs. Michelin et Cie., for the latter firm to make the "Clincher-Michelin" for sale in the United Kingdom, this being apparently somewhat of a counterblast to the arrangement existing between the Continental and Clipper companies. Presumably there will not be an appreciable difference between the "Clincher-Michelin" and the ordinary Michelin, except in matter of attachment, and those motorists who have wished to obtain Michelin tires and found difficulties in the way will now be able to get their hearts' desire. At the automobile show the rubber trade was not at all strongly represented, Moseleys' and the North British, however, having good exhibits. The Dunlop company are making great strides with their motor tire business, and I anticipate an increasing appreciation by the public of the work which Mr. Paterson, the manager of the Pará mills (Birmingham) is so carefully carrying out. From all accounts the tire tread they have produced, and which is proof against side slip, bids fair to remedy a long standing grievance. In this improvement the tread is somewhat increased in thickness, being cut transversely with segmental grooves about 1 inch deep by $\frac{3}{4}$ inch wide, the grooves occurring at center to center distances of $1\frac{1}{4}$ inches all round the tread, the object achieved being to thrust the mud skin of the road away, enabling a grip of the surface. The most recent flotation is the Collier Tyre Co., Limited, with a capital of £100,000, to acquire the business of

the Collier Twin Tyre Co., Limited (1900). I am informed that the tires will be made as heretofore, at the works of the Leyland and Birmingham Rubber Co. The automobile show which opened on February 4, at the Crystal Palace is, from all accounts, the best ever held in England. Should my representative discover anything of novelty in rubber I shall refer to it next month.

I AM not entitled to entrench on politics in these notes, and I may as well disarm suspicion at once by saying that I have no intention of doing so. I wish merely to refer to the Balata business. According to a friend of mine, who has just returned to this country after a three years' sojourn in Venezuela, there is a great waste of Balata trees going on, the regular method of collecting the sap being in the first instance to cut down the tree. It is generally understood that in Trinidad and the Guianas the wood, which has considerable value, is utilized, but this is quite the exception in Venezuela, it being allowed to rot on the ground. Of course, absence of means of traction accounts to a large extent for this, and at the present rate of development this difficulty is not likely to be rapidly surmounted. There can be no doubt that the difficulty of getting machinery and plant into the districts where minerals abound has been a great factor in retarding the development of the mining industry.

WHAT Dr. Weber has to say regarding sulphur in his new book ("The Chemistry of India-Rubber") will no doubt attract attention in the trade, though I think the following sentence requires a little modification: "It is surprising how tenaciously rubber manufacturers cling to the use of flowers of sulphur for vulcanizing purposes, considering that this product is one of the most variable and impure forms of commercial sulphur." Those manufacturers, such as the Union Alkali Co., of Soho Works, Manchester, who have for a long time supplied to the rubber trade a uniform neutral product, will, I imagine, feel that the author should have qualified his words so as to limit his denunciation to crude flowers of sulphur, the use of which, owing to its variable composition, can hardly be considered as in the manufacturer's best interests. I agree with Dr. Weber in his remarks about acidity, a point which has engaged the attention of the vulcanized rubber cable manufacturers closely. The milk of sulphur he refers to as having nothing to recommend it is, I think, hardly used at all at the present day, though I can remember the time when it was more largely employed. With regard to precipitated sulphur, of which he speaks highly, there is no doubt that the high price has been a bar to its adoption, and I am not satisfied that it is really worth the extra price to large manufacturers.

THE name of the new company established at Mouton Green, near Manchester, to manufacture an oil substitute for leather, is the British Pluviusin Co., Limited. In

a recent reference I made in these notes to the subject, somebody on the staff of the paper altered it to "Pluvium," which, though certainly a more generally convenient title, is not correct.

MR. KENNETH ROSE, of the Pará Rubber Plantation Co., when asked about the adulteration of rubber with *farinha* flour in the Amazon country, said that he knew of some districts where this was not likely, because *farinha* was worth more than rubber. The cost of food is high, wages are high, and rubber has to pay for it all. Where *farinha* is cheaper, however, it is mixed with the rubber in coagulation, being the only substance that can be used in this way without detection when the rubber lumps are cut open for export. Mr. Rose is now at his post on the river Casiquiare.

TESTING OF
INSULATING
MATERIALS.

MOTOR
TIRE
INTER-STS.



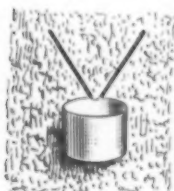
THE NEW DUNLOP TIRE.

PREPARING "PARA RUBBER" IN CEYLON.

TO THE EDITOR OF THE INDIA RUBBER WORLD: I have much pleasure in complying with your request for full particulars as to the method of collecting and coagulating rubber, up to the time of despatch for market, employed on the Kepitigalla estate [at Matale, Ceylon]. After considerable experience, with several methods employed in other parts of the globe, I think there is none other equal to the one adopted in Ceylon, and if this were used in other countries it certainly would mean a rise in price of at least 6 pence a pound for rubber.

The tool employed for tapping rubber trees on this estate is not equalled by any other in use, for its clean cut and absolutely safe incision, the tree not being damaged in the least. The shape is indicated by an accompanying cut.

In practice both hands are used to hold the wooden handle. Placing the corner of the angle *B* at the start of the cut, the tool is pulled downward two or three times in the same incision, care being taken not to cut into the wood. Though this may seem difficult at the beginning, a little practice will soon make the work easy. After two cuts have been made, converging in the shape of the letter V, another laborer places a small tin cup at the lower point of the V. Care should be taken that at this point the two cuts do not run together, but that a small space be left between them. The incisions should be about 4 inches long, with a space of at least 3 inches between them at the top. The same space (3 inches) should be left before beginning the next pair of incisions in going around the tree. This is absolutely necessary, for if the cuts join, the flow of sap to the tree will cease, and the tree will die. The first series of incisions should be made as far up the tree as a person standing on the ground can reach. Every second day a new band of incisions may be made lower down, as indicated in the drawing. About twenty rings or bands of incisions can be made around a tree within a distance of six feet from the ground. About five V shaped incisions may be made around a tree 40 inches in circumference.



INCISIONS WITH
TIN ATTACHED.

ing, and in this way three men can place 400 cups in a half day, and attend to the rubber obtained.

The contents of all the tins are stirred once or oftener, besides which the laborers must see to it that none of them overflow. Work is started about 6 A. M. and by 11 A. M. all the tins have been taken off and emptied into a pail. While one coolie carries the pail of latex to the factory, the others wash out the tins and at once replace them under the same cuts. The tins are again emptied, in the same manner, at 3 P. M., which completes the yield of latex from a given set of incisions. In

the meantime, after the tins are washed, the coolies pick off any rubber that may have dried in the wounds made on the last round, which is called scrap. So much for the collection of the latex; we come now to the curing of the rubber, which is simpler still.

As the latex is brought to the factory in a liquid state (mixed with water, which is necessary to enable the latex to go through the process by which the rubber is preserved), it is strained through a very fine wire mesh—a milk strainer, for example—into shallow tin pans, 7 inches square by 2 inches in depth, in which it is left to stand overnight. By morning the rubber will have coagulated naturally, without the use of any chemicals, and most of the water will have become separated from the pure rubber. The lump of rubber is then taken out and placed on

a table and gently pressed with the hand to exclude the water, after which a wooden roller worked by hand is passed over it, back and forth, until more of the water has been expressed, leaving a flat sheet of rubber



TOOL FOR INCISING RUBBER TREE.

about 8 inches square and $\frac{3}{4}$ inch thick. The lumps of rubber thus made are placed on caned trays or frames about 6 × 3 feet, caned like the bottom of a chair, though not so closely woven. After the rubber sheets have remained on the trays for four or five days, they are hung to dry on wires stretched across the room, after which they will require frequent attention to prevent mildew, a man being detailed to rub off all mildew spots with a rag. About two months are required for the rubber to become thoroughly dry and free from white patches. So long as these patches appear, it is an indication of dampness and further drying will be required.

When thoroughly dry the sheets of rubber are ready for shipment, and are packed in boxes about 18 × 18 inches square and 8 inches deep—usually about 50 pounds to a box. The secret of the high prices obtained for rubber from Ceylon lies (1) in the straining of the latex, by which every particle of dirt is kept out, and (2) in the thinness of the sheets of rubber, which permit any one to see that they are free from dirt, sand, etc. No chemicals are used, and no heating is required. On the whole this is the simplest method, when one knows how, that could possibly be adopted. The rubber from most countries now comes to market in large pieces, and can conceal any amount of impurity, while in other cases the latex is allowed to dry on the stem of the tree and when pulled off contains a large percentage of bark and dirt, which mean loss to the buyer and extra work in the factory.

The last sales of rubber from this estate have brought probably the highest average price of any rubber sold in the world during the same period, and this is saying a good deal, namely: an average of 3s. 11d. per pound. The total output for Ceylon for 1903 will be about ten tons, of which this estate will send two tons.

FRANCIS J. HOLLOWAY.

Kepitigalla Estate, Matale, Ceylon, January 8, 1903.



RELATIVE POSITION OF
SERIES OF INCISIONS.

KEPITIGALLA ESTATE AND ITS PRODUCT.

THE Kepitigalla estate is situated in the Central province of Ceylon, in the valley of the Matale river, eight miles from Matale town. THE INDIA RUBBER WORLD of December 1, 1902 (page 80), contained some details regarding the extent of the rubber tapping on this estate, to August, 1902, by the manager, Mr. Holloway. It was stated at the time that the trees were planted at the rate of 150 per acre, at a distance which fitted them for shading cacao. His experience to that date pointed to one hundredweight (112 pounds) as the average yield per acre, based upon a result of tapping about 4,000 trees. He gave then also an estimate of the cost of preparing rubber and forwarding it to the seacoast, which equalled \$17 per acre. At 3s. 11d. per pound, the product of an acre would realize \$106.73, which, after deducting freight to London and brokers' commissions, should allow a very good profit.

THE INDIA RUBBER WORLD's report of the London rubber auction of November 14, 1902, contained this item: "Ceylon—14 cases offered and retired, after 3s. 11½d. had been bid for fine (from Pará seed)." Amazon rubber at the same date brought 3s. 2½d. to 3s. 6d.—the latter being paid for fine old Bolivian. From the *Ceylon Observer* of December 8, 1902, it is learned that the Ceylon rubber referred to was produced by Mr. Holloway, on the Kepitigalla estate; besides, the very good prices

finally obtained for this rubber are given, as follows:

4 cases valued at 3s. 11d., sold at 4s.
8 cases valued at 3s. 11d., sold at 4s.
1 case scrap, valued at 2s. 8d., sold at 2s. 10d.

These cases contained 50 pounds each, except in the case of the scrap, which weighed 42 pounds—the total being 642 pounds, and the proceeds £125 12s. [= \$611.23.]

Mr. H. G. Tippet, managing director of the Liverpool Rubber Co., Limited, who has used some of the Ceylon rubber, says in regard to it, in a letter to THE INDIA RUBBER WORLD:

"The weight of the cases at present is irregular, roughly about 100 to 130 pounds, but they will probably settle down as the supply becomes regular to 1 cwt. (112 pounds) cases. The rubber is excellent—made up in round pancakes (just like buckwheat cakes), about ¼ inch thick, and 6 inches diameter; semi-translucent—absolutely clean and dry—loss about 1 per cent. Quality equal to finest Bolivian Pará."

At the London rubber auction on January 23, sales included 19 packages, fine thin Ceylon biscuits (from Pará seed), at 4s. 2d. @ 4s. 3d.; fair to good clean scrap, 3s. 2d. @ 3s. 4½d. [= \$1.01½ @ \$1.03½ per pound for fine and 77 @ 81½ cents for scrap]. Sales of Brazilian Pará on the same date were made at 3s. 9d. @ 3s. 9½d., spot. The source of this rubber is not now known to THE INDIA RUBBER WORLD.

AMERICAN RUBBER PLANTING COMPANIES.

PAN-AMERICAN PLANTERS' CO.

[Plantation "Santa Isabel," state of Oaxaca, Mexico. Office: Nos. 133-135 La Salle street, Chicago, Illinois.]

INCORPORATED under Indiana laws; capital, \$50,000, paid in cash. Own 5000 acres in the state of Oaxaca, between the Trinidad and Colorado rivers, just above where their conjunction forms the river San Juan, which empties into the gulf at Alvarado; also near the Vera Cruz and Pacific railway. Plantation certificates or bonds, two for each acre, will be issued, at \$150 each, payable in cash or monthly installments; they are non-forfeitable after 40 per cent. has been paid; in case of death of a subscriber after 50 per cent. has been paid, the full number of certificates will be delivered; 6 per cent. annual dividends promised from the beginning. Rubber will be the principal crop ultimately, but other crops will be cultivated, to afford dividends during the early years of development. Hon. Charles Foster, late governor of Ohio and late United States treasurer, president; C. M. Barnes, school books, and W. B. Stewart, M. D., vice presidents; Junius L. Burgess, railway auditor, secretary; John A. Wilferth, lately with Corn Exchange Bank, Chicago, treasurer. James Brydon, with ten years' experience in Mexico, is plantation manager.

BUENA VISTA PLANTATION CO.

[“Hacienda de Buena Vista,” San Juan Evangelista, canton of Acayucan, Vera Cruz, Mexico. Office: Elkhart Indiana.]

INCORPORATED under Maine laws, November 15, 1902; capital authorized, \$2,000,000. Directors of the company own 5000 acres of land adjoining the well known Cockrell estate. Sugar, rubber, yuca, and "quick crops" are to be planted, and some land will be devoted to grazing. The Buena Vista Development Co. will develop and operate the plantation for a term of years, 90 per cent. of the net profits to go to shareholders in the plantation company. Forty acres are covered with rubber trees (*Castilloa elastica*) planted four years ago, and the property includes a sugar mill, saw mill, shops, and buildings. The company offers shares of stock—not acreage certificates—at

\$100, cash or in installments. Adolph D. Stock, milling, Hillsdale, Michigan, is president; B. F. Stewart, retired from flour milling, Chicago, first vice president; Dr. W. S. Cockrell, second vice president and resident plantation director; Frank A. Sage, former banker, Elkhart, Indiana, treasurer; Eugene Atkins, milling, Bristol, Indiana, secretary. The plantation staff includes Gerald Mahoney, graduate of the Armour Institute of Technology and an expert electrical engineer, and Edgar J. Hahn, a resident of Mexico for 12 years and an expert sugar man. One of the directors, R. P. Probasco, of Chicago, is mentioned as having been the organizer and an officer of six plantation companies in Mexico, with a combined capitalization of \$6,000,000.

SANTA BARBARA PLANTATION CO.

[Plantations, Santa Barbara, Honduras. Offices: Hammond building, Detroit, Michigan and Home Life building, Washington, D. C.]

ONE of a series of enterprises which a Michigan syndicate contemplates establishing in the valley of the San Pedro Sula, in Honduras. This company is incorporated under Michigan laws, with \$300,000 capital. The plantation is located in the state of Santa Barbara, in northwestern Honduras, bordered by navigable streams and intersected by the Honduras railroad, which connects with Puerto Cortez. At the outset 200 acres will be planted to rubber (300 trees to the acre) and 1200 acres to bananas, with the idea later of increasing the proportion of rubber. Quick growing crops may also be planted. The company offer for sale shares of \$10 each. Orran G. Staples, proprietor Riggs House, Washington, president; Edwin G. Madden, third assistant postmaster-general, vice president; Clay C. Cooper (Detroit, Michigan) secretary and treasurer.

NUMBER OF TREES PER ACRE.

TO THE EDITOR OF THE INDIA RUBBER WORLD: In your February issue, in speaking of a rubber planting company on the Tuliija river (Mexico), you mention that they purpose planting 600 trees per acre, to be reduced to 200 later. For a number of years I have been in connection with one of the

most practical rubber planters in Mexico, using various methods, and the results show that 160 trees per acre are all that should be planted. They develop more rapidly, and a tree $2\frac{1}{2}$ years old planted in this way is much larger than I know to have been seen in Mexico by many persons who have visited plantations where trees were standing four years old, 200 per the acre. The plan of setting 500 or 600 trees to the acre and then thinning out I consider a very bad one. For one reason, the trees will not develop so rapidly, and another reason is that the young rubber tree is very tender, bleeding at the least scratch on the stem, branches, or leaves, and in thinning out one must be extremely careful or it will be found that the trees pulled up will not yield enough rubber to pay for the labor.

C. M. KENDALL.

Milwaukee, Wisconsin, February 6, 1903.

RUBBER VINES IN HONDURAS.

ALFRED K. MOE, United States consul at Tegucigalpa, Honduras, reports the existence in the Pijo mountains, in the department of Yoro, of "a vine growing in an uncultivated state, varying in diameter from 4 inches to 2 feet, which on cutting produces a sap the nature of which is rubber. These vines grow to 100 feet in length." The vine thrives at all altitudes and is said to be abundant. The same plant has been referred to in THE INDIA RUBBER WORLD of May 1, 1901 [page 234], and November 1, 1901 [page 40].

YIELD OF "PARÁ RUBBER" IN SELANGOR.

THE Straits *Agricultural Bulletin* (November, 1902) reports the record yield of a "Pará" rubber tree for one year, in the Far East, obtained by Cyril E. S. Baxendale, Jugra estate, Selangor, Malay States. Two *Hevea* seedlings planted, it is believed, in October, 1877—making them now 25 years old, from the seed—were tapped closely during two months of last summer. One tree, 89 inches in girth at one yard from the ground, had never been tapped before; the other, with a girth of 56 inches, had yielded 3 pounds during July, 1901. The result for 1902 was:

	Tree No. 1.	Tree No. 2.	Total.
Yield of fine rubber . . .	15 lb. 12 oz.	11 lb. 2 oz.	26 lb. 14 oz.
Yield of scrap	2 " 4 "	1 " 8 "	3 " 7 "
Total yield	18 lb. 0 oz.	12 lb. 10 oz.	30 lb. 5 oz.

RUBBER PLANTING IN GERMAN EAST AFRICA.

ON the plantation at Lewa, of the Deutsch-Ostafrikanische Plantagen-Gesellschaft, it is stated that 250,000 rubber trees had been planted to the end of November, 1902, of which 15,000 are expected to be ready for tapping this year. Some experimental tapping has produced rubber which was well reported on in Germany. The German East Africa Plantation Co., whose headquarters are in Berlin, was formed in 1886, with a capital of 2,000,000 marks, and has planted coffee very extensively, on its concession in the Usambara district, near the sea coast, opposite the island of Pemba.

THE *British North Borneo Herald* reports an agreement entered into by the governor of British North Borneo with W. Alleyne Ireland, of the United States, for the formation of an American company to work Gutta-percha and India-rubber in that colony. The lessee shall enjoy for two years the sole right to select and acquire tracts of rubber or gutta forest or land in that territory.

—We have received from Missouri a pamphlet discrediting rubber planting in Mexico, alleging that the promises of the planting companies are too good to be true. The pamphlet is issued by a company offering Missouri lands for sale, at \$3 to \$5 per acre, payable in instalments, that "in the very near future" will be worth \$50 to \$500 per acre. Can any rubber planting company promise better than this?

LITERATURE OF INDIA-RUBBER.

REPORT ON *HEVEA BRASILIENSIS* IN THE MALAY PENINSULA. By Stanley Arden, Superintendent Experimental Plantations, Federated Malay States. Taiping: Government Printing Office. [Folio. Pp. 28.]

THIS is an official report, treating of the introduction of "Pará rubber" into the Far East; methods of cultivation, extraction of latex, and preparation for market; the rate of yield; and estimates of cost of opening and maintaining a rubber plantation. Mr. Arden has summarized all the authentic details available, from numerous plantations, some of which will appear at an early date in these pages. He promises a further report on the quality of rubber produced by the various methods described in this pamphlet.

A NEW journal devoted to rubber interests, and the first in the French language, has been established in Brussels, *Le Moniteur du Caoutchouc*, by Gustave van den Kerckhove. While its scope will embrace industrial and commercial features as well, it is evident from the contents of the first issue (dated February) that special attention is to be given to the development of the African sources of rubber, with which subject M. Kerckhove has become exceptionally familiar during his several years experience as an expert in the Antwerp rubber market. *Le Moniteur*, however, is international in scope, and the first number is accompanied by a map of rubber concessions in Bolivia. The new journal has our best wishes, and we shall look forward to seeing its influence shown in an increasing interest in rubber matters in the French speaking countries. [Bureaux: 3, Quai à la Chaux, Bruxelles; 20 francs per annum.]

THE Calcutta journal started eleven years ago as the *Indian Gardening*, in time added a planting section which has developed into the more important department of the paper. The title has been changed, therefore, to *Indian Planting and Gardening*, besides which the paper has been enlarged and made one of the best appearing journals in the Far East. Its very capable editor, Mr. H. St. John Jackson, F. L. S., F. R. H. S., has followed with sympathetic interest the progress in rubber cultivation, with which his readers have been kept well informed.

IN CURRENT PERIODICALS.

DIE Kultur von Kautschuk liefernden Bäumen in Neuguinea. By W. Kolbe. [*Castilloa elastica* has been grown for several years in New Guinea as coffee shade and in connection with cocoanuts. *Ficus elastica* and *Hevea* have also been planted.]—*Der Tropenpflanzer*, Berlin. VII-1 (January, 1903) Pp. 20-24.

Ist die Anlage einer staatlichen Guttaperchaplantzung in Kamerun zu empfehlen? By Paul Preuss, PH. D. [Reasons for regarding as impracticable Dr. O. Warburg's suggestion of a state controlled Gutta-percha plantation in Kamerun.]—*Der Tropenpflanzer*, Berlin. VII-1 (January, 1903.) Pp. 24-28.

Une Plantation de Caoutchoutiers au Congo. By G. Bemelmans. [Details of Planting 370½ acres, by one of the Congo trading companies, with Pará and Ceará rubber, *Castilloa elastica*, *Kickxia*, and Balata.]—*Revue des Cultures Coloniales*, Paris. XII-116 (January 5, 1903). Pp. 1-6.

OTHER PUBLICATIONS RECEIVED.

"MODERN MEXICO'S" STANDARD GUIDE TO THE CITY OF MEXICO and Vicinity. By Robert S. Barrett. Third edition—1902-03. City of Mexico and New York: Published by *Modern Mexico*. [2vo. Pp. 186. Price, 50 cents.]

THIS is not a mere collection of travel routes or perfunctory description of places. It has been written, rather than compiled, and presents much information regarding the country and the people and their customs, of a character to aid the tourist in Mexico in finding readily what is likely most to interest him, and in understanding what he sees. Not the least valuable feature of the book is its wealth of illustrations, a sight of which will tempt lovers of the picturesque who have not seen Mexico to wish to visit that country.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values for the calendar year 1902, compared with four years preceding, not including exports to Hawaii and Porto Rico:

MONTHS.	Belting, Packing, and Hose.	Boots and Shoes.	All other Rubber.	TOTAL.
December, 1902. . .	\$ 66,351	\$107,507	\$ 186,778	\$ 360,636
January-November. .	671,906	958,085	1,825,127	3,455,118
Total, 1902.	\$738,257	\$1,065,592	\$2,011,905	\$3,815,754
Total, 1901.	608,116	974,018	1,743,882	3,326,016
Total, 1900.	528,382	721,085	1,559,049	2,808,516
Total, 1899.	(a) 479,069	327,139	1,475,380	2,081,588
Total, 1898.	(a)	224,734	1,440,492	1,665,226

(a) Included in "All Other" prior to July 1, 1899.

Number of pairs of rubber boots and shoes exported:

In 1897.	412,627	In 1900.	1,399,285
In 1898.	400,969	In 1901.	2,408,776
In 1899.	621,069	In 1902.	2,377,743

Value of exports of reclaimed rubber:

1898.	1899.	1900.	1901.	1902.
\$296,214	\$431,136	\$503,282	\$355,682	\$382,520

RUBBER GOODS EXPORTS FROM NEW YORK.

VALUES during four weeks ended January 27, 1903:

Australia. . .	\$12,034	Denmark. . .	\$ 2,074	New Zealand. .	\$13,672
Argentina. . .	828	Ecuador. . .	2,140	Portugal. . .	131
Belgium. . .	6,100	France. . .	8,593	Peru.	52
Brit. Africa. .	12,369	Germany. . .	10,613	Philippines. .	4,006
Brazil. . . .	949	Great Britain.	51,334	San Domingo. .	143
Brit. E. Ind. .	1,183	Haiti.	10	Spain.	137
Brit. W. Ind. .	592	Italy.	3,610	Sweden. . . .	75
Colombia. . .	714	Japan.	3,538	Switzerland. .	289
Cuba.	6,935	Mexico. . . .	2,531		
China.	150	Norway. . . .	1,572	Total.	\$148,220
Central Amer.	202	Newfoundld.	1,070		
Chile.	101	Netherlands. .	473		

IMPORTS INTO THE UNITED STATES.

	1900.	1901.	1902.
India-rubber Goods.	\$536,448	\$462,703	\$562,997
Gutta-percha Goods.	252,238	121,485	121,123
Total.	\$788,686	\$584,188	\$684,120
Reexports.	21,819	14,288	4,655
Net Imports.	\$766,867	\$569,900	\$679,465

GERMANY.

THE table at the foot of this page exhibits in detail the values

IMPORTS.			GERMANY.		EXPORTS.		
1900.	1901.	1902.	CLASSIFICATION.		1900.	1901.	1902.
2,750,000	2,348,000	2,468,000	... Rubber threads and sheets. . .		2,755,000	2,871,000	3,770,000
174,000	414,000	482,000	... Bicycle parts (solid tires, etc.)..		a	a	a
1,343,000	734,000	784,000	... Textile goods coated with rubber. .		21,091,000	11,962,000	24,243,000
192,000	234,000	228,000	... Hard rubber goods.		7,630,000	7,393,000	8,916,000
3,668,000	4,243,000	4,402,000	... Rubber boots and shoes.		1,580,000	1,318,000	1,901,000
209,000	196,000	290,000	... Fine soft rubber goods.		1,446,000	1,047,000	1,054,000
78,000	107,000	105,000	... Toys of rubber.		b	b	b
3,113,000	3,104,000	3,583,000	... Waterproof wearing apparel. . .		4,644,000	3,970,000	4,678,000
89,000	73,000	354,000	... Tires, etc., with fabrics.		c	c	c
74,000	59,000	49,000	... Elastic fabrics and hosiery. . .		259,000	339,000	329,000
...	...	...	... Hemp hose, etc.		1,484,000	1,796,000	2,527,000
46,000	43,000	34,000	... Hard rubber.		405,000	306,000	229,000
...	...	...	... Unclassified rubber goods. . .		147,000	140,000	172,000
11,736,000	11,555,000	12,679,000	... Total in Marks.		42,484,000	31,142,000	46,776,000
£573,958	£565,106	£620,076	... Total, Sterling.		£2,077,714	£1,523,016	£2,287,621
\$2,793,168	\$2,750,090	\$3,017,602	... Total, U. S. money.		\$10,111,192	\$7,411,756	\$11,132,708

a, c Included in exports of Bicycle Parts, all sorts [which amounted in value in 1902 to 11,037,000 marks; value of rubber parts not stated.]

b Included in exports of Toys, all sorts [which amounted in value in 1902 to 55,447,000 marks; value of rubber toys not stated.]

in marks of imports and exports of India-rubber manufactures for three years past, from official sources.

RUBBER BOOTS AND SHOES.

IMPORTS and exports (in kilograms) for three years:

FROM—	1900.	1901.	1902.	TO—	1900.	1901.	1902.
Russia.	450,100	532,700	597,300	G. Britain. . .	151,900	147,500	195,400
U. States. . . .	38,100	55,800	119,300	Roumania. . .	300	5,000	22,200
Sweden.	12,900	51,000	44,700	Switzerland. .	10,600	9,900	19,700
G. Britain. . . .	39,800	28,200	14,500	Not stated. . .	125,300	76,300	108,300
Austria.	93,000	28,600	9,100				
Not stated. . .	4,000	10,800	18,800	Total.	287,200	239,600	345,600
Total.	637,900	707,100	733,700				

AUSTRIA-HUNGARY.

OFFICIAL returns of values of rubber goods in commerce:

	1901.	1902.
Imports.	\$2,199,511	\$2,275,715
Exports.	1,699,426	1,849,245

Imports were smaller with respect to soft rubber goods, which amounted to \$587,685, largely from Germany; smaller for rubber shoes, \$288,047, mostly from Russia; and larger for rubber thread, \$370,110, mainly from Great Britain. Exports were larger in the items of hard rubber goods, \$416,231; fine soft rubber goods, \$322,141; rubber shoes, \$464,383; and elastic webbing, \$221,469.

RUBBER BOOTS AND SHOES.

IMPORTS and exports (in kilograms), by countries, for 1902:

FROM—	Kilos.	FROM—	Kilos.	FROM—	Kilos.
Russia.	174,400	France.	400	Ret'nd goods	6,500
Germany. . . .	13,900	Denmark. . . .	300		
United States. .	10,800	Canada.	100	Total.	218,300
Great Britain. .	7,100	Servia.	100	Total, 1901. .	200,400
Sweden.	4,600	Norway.	100		
TO—	Kilos.	TO—	Kilos.		
Germany. . . .	118,800	Greece.	23,100	Bulgaria. . . .	3,700
France.	93,000	Great Britain. .	19,900	Algiers.	2,900
Roumania. . . .	79,600	Belgium.	18,200	Other lands. .	3,300
Turkey.	69,200	Switzerland. . .	16,800		
Italy.	62,000	Holland.	10,900	Total.	571,900
British India. .	40,600	Hamburg. . . .	9,900	Total, 1901. .	708,600

FRANCE—COMMERCE SPECIAL.

VALUES of rubber goods imports and exports for three years:

	1900.	1901.	1902.
Imports.	francs 5,394,000	16,290,000	16,552,000
Exports.	10,381,000	8,898,000	9,826,000

The movement for 1902, classified officially, was as follows; values being stated in francs:

	Imports.	Exports.
Unvulcanized sheets and vulcanized threads. . .	5,099,000	...
Elastic tissues.	893,000	2,864,000
Overlaid tissues.	68,000	94,000
Card tissues.	382,000	5,000
Made up clothes.	513,000	907,000
Shoes.	2,673,000	941,000
Belting, hose, tires, etc.	6,324,000	5,015,000

Total. 16,552,000 9,826,000
U. S. gold. \$ 3,194,536 \$1,896,418

NEW USE OF RUBBER BALLOONS.—At the last meeting of the international aeronautic commission, Herr Assmann delivered a lecture on the uses of rubber balloons, such as are now known as the toy balloons, for the purpose of registering the temperatures in the highest air planes. Within the near future Herr Assmann will cause one of those balloons, fitted with a registering apparatus, to ascend.—*Gummi-Zeitung.*

THE WORLD'S TRADE IN WASTE RUBBER.

THE imports of India-rubber scrap into the United States, first reported by the customs authorities for the fiscal year 1890-91, amounted in that period to only 488,163 pounds, of the average import value of 3.9 cents. One half of this amount was credited to Great Britain, another third to Germany and Canada, and the small remainder to various countries. During the fiscal year 1901-02 the imports of this material reached the enormous total of 22,894,900 pounds, of the average import value of 6.2 cents, or a total value of \$1,437,960. For the numerous sources of this large quantity, and the yearly development of the supplies from each country, reference is made to the table at the foot of this page. The receipts from Germany alone, it will be seen, amounted to 8,716,907 pounds, and from the Russias practically as much. Nearly 3,000,000 pounds arrived from Canada, and over 1,000,000 pounds from Great Britain.

These figures are of interest, in the first place, as indicating the important place which the use of reclaimed rubber has gained in the rubber manufacture, for all this waste is, of course, imported into the United States to be converted into new raw material, to be distributed again to all countries where the rubber industry exists. Not only is the quantity above stated to be taken into account, but the collections of waste rubber in the United States, which, being the largest consumer of rubber goods of any country in the world, supplies larger quantities of waste than any other. It is possible, indeed, that the amount of waste rubber collected in this country in the year 1901-02 was sufficient, added to 22,000,000 pounds of imports, to make a total of 100,000,000 pounds. Supposing the whole to have yielded 80 per cent., by weight, of reclaimed rubber, the total produced would have been 80,000,000 pounds. These figures may be too large, but there is further to be considered the use of recovered or devulcanized rubber in not a few European factories, prepared in their own plants, from waste materials which do not appear in the above estimates. The amount of reclaimed rubber used, in view of all these facts, must be within 20 per cent. as great as that of all the new rubber, of whatever grade, consumed.

But these figures have another bearing. Nearly 20,000,000 pounds of the waste rubber imported into the United States last year was derived from Europe, and figured in the official statements of the India-rubber movement of various European countries, no separate classification of rubber waste yet having been adopted by them. So long as this confusing element exists in their rubber statistics, it will be impossible to determine how much crude rubber actually is imported and exported. Undoubtedly, however, the rubber movement in most of the countries referred to is overstated, to the extent that rubber waste is included in the customs returns.

For example, the British import returns long have embraced "Caoutchouc" from Russia, though it is well known that England does not receive any crude rubber from that country. Such imports credited to Russia in the latest British returns have been as follows:

	1897.	1898.	1899.	1900.	1901.
Pounds.....	938,512	2,311,120	2,196,992	4,260,928	4,150,160

All of these amounts are clearly old "galoches" and were they entered as such, the result would be a material modification of the returns of the crude rubber movement in England. A like condition exists with reference to German statistics of rubber imports. In the latter country crude rubber is reported to have been received, not only from Russia, but from several other European countries, not one of which is likely to be an exporter of this material, as follows:

FROM —	1899.	1900.	1901.	1902.
Russia..... pounds	7,267,260	4,061,420	4,325,200	4,309,140
Finland.....	55,000	255,420	302,500	253,660
Denmark.....	64,240	134,860	125,180	186,560
Norway.....	130,020	306,440	108,220	77,220
Sweden.....	439,780	843,260	863,940	1,217,920
Austria-Hungary.....	118,800	180,860	110,020	500,720
Turkey.....	174,020	240,900	186,340	144,760
Roumania.....	.....	.....	55,440	75,240
Switzerland.....	.....	.....	129,360	143,660

Total..... 8,240,120 6,122,160 6,305,200 6,908,880

Some scrap must have imported also, from Great Britain. Next will be given a comparison of the German official returns of India-rubber exported to the United States during

IMPORTS OF SCRAP RUBBER INTO THE UNITED STATES—FISCAL YEARS ENDING JUNE 30.

Countries.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902
Austria-Hungary..... pounds	.....	.....	.....	.....	.....	.....	.....	.....	32,086	.....
Belgium.....	.....	.....	3,916	12,229	16,928	74,683	196,760	300,419	264,700	399,630
Denmark.....	24,238	.....	52,053	46,628	15,424	129,811	90,075	7,273	54,970	.....
France.....	24,610	68,211	52,015	42,868	41,264	84,769	64,782	190,901	225,792	316,281
Germany.....	104,653	707,647	742,259	1,910,033	1,291,353	2,857,606	3,560,065	9,810,311	5,797,120	8,716,907
Netherlands.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	111,315
Portugal.....	.....	.....	.....	.....	.....	.....	.....	.....	2,530	.....
Russia.....	22,000	.....	65,954	398,321	563,998	1,582,862	2,993,763	3,955,387	4,886,460	5,122,607
Russia—Black sea.....	.....	.....	65,407	.....	300,815	132,190	329,495	1,092,129	1,326,305	3,413,630
Spain.....	.....	.....	.....	.....	.....	.....	.....	.....	4,300	.....
Sweden-Norway.....	.....	10,675	15,540	.....	.....	11,267	33,800	95,175	251,940	363,448
Turkey in Europe.....	65,233	131,621	67,405	51,437	18,178	50,988	115,143	123,866	83,498	243,352
United Kingdom.....	117,929	188,997	254,480	340,439	593,798	269,652	426,790	1,006,513	996,484	1,089,082
British North America.....	548,067	664,498	583,871	659,830	398,913	2,051,617	2,675,147	2,497,908	1,299,270	2,989,683
West Indies.....	3,813	2,359	115,987	.....	19,736	.....	4,220	1,050	6,925	26,988
South America.....	.....	.....	.....	.....	.....	79,535	.....	300	.....	.....
British East Indies.....	.....	.....	.....	409,752	389,238	2,140,358	.....	.....	.....	.....
Other countries.....	.....	.....	1,637	3,140	4,300	.....	23,534	12,315	2,856	1,977
Total..... pounds	910,543	1,774,008	2,032,563	3,874,677	3,653,945	9,488,327	10,513,604	19,093,547	15,235,236	22,894,900
Import Value.....	\$25,633	\$55,803	\$63,112	\$123,068	\$113,722	\$339,374	\$462,044	\$1,249,231	\$988,316	\$1,437,960
Average per pound.....	2 8 cts.	3.1 cts.	3.1 cts.	3.2 cts.	3.1 cts.	3 6 cts.	4.4 cts.	6 5 cts.	6.5 cts.	6.2 cts.

the three last calendar years, of the United States returns of crude rubber imported from Germany in the same period—weights in pounds:

	1900.	1901.	1902.
Exports reported by Germany.....	5,912,320	6,390,780	8,502,340
Imports reported by United States..	1,428,339	1,832,558	2,393,998

No doubt if figures were at hand which permitted a closer adjustment of the periods of time than is now possible, the total exports under the head of rubber from Germany to the United States would be found to balance pretty closely the combined imports credited to Germany by the United States for crude rubber and scrap.

It is evident that Russia must be a very large exporter of rubber waste. Grouping in one table the imports by the different countries from Russia, so far as reported—fiscal years for the United States and calendar years in other cases—we have:

	1899.	1900.	1901.	1902.
United States.....pounds	3,323,258	5,047,516	6,212,765	8,536,237
Germany.....	7,267,260	4,061,420	4,325,200	4,309,140
Great Britain.....	2,196,992	4,260,928	4,150,160	
Austria-Hungary.....				67,980

Allowing 3,000,000 pounds to have been imported by Great Britain in 1902, the above table indicates an average annual export by Russia, for four years of upwards of 14,000,000 pounds.

AUSTRIAN RUBBER SCRAP MOVEMENT—1902.

[From Official Returns.]			
FROM—	Pounds.	TO—	Pounds.
Germany.....	140,580	Germany.....	441,100
Russia.....	67,980	Hamburg.....	20,900
Roumania.....	23,760	Great Britain.....	5,280
Great Britain.....	7,920	Sweden.....	3,960
Other countries.....	7,920	Other countries.....	4,180
Total.....	248,160	Total.....	471,900
Total, 1901.....	406,120	Total, 1901 ..	211,860

JOBBER AS DISTRIBUTORS OF RUBBER FOOTWEAR.

AT the second annual convention of the National Shoe Wholesalers' Association of the United States, held in Boston on February 4, Colonel Samuel P. Colt, president of the United States Rubber Co., spoke for the manufacturers of rubber shoes on "The Relations of Rubber Manufacturers to Wholesalers and Retailers." He said, in beginning, that about four-fifths of the product of the United States Rubber Co. is sold to wholesalers (jobbers), and only about one-fifth direct to retailers. Colonel Colt continued:

"While there may be a present tendency in certain lines of goods to pass by the middlemen, the fact that most of the jobbers of rubber footwear are also jobbers of leather footwear, and that the two lines can be handled together more economically than either by itself, is a special reason for my belief that for a long time to come the manufacturers of rubber footwear will continue to sell the larger portion of their product to the wholesaler.

"Under what conditions should the rubber manufacturer sell to the wholesaler?" This may be said to be the live question of the hour in which you as well as ourselves are deeply interested.

"Shall the manufacturer, after parting with his title to the goods, attempt to control the price at which these goods shall be resold, or shall he leave such price to be regulated by agreement between the wholesalers themselves, or to be governed by the natural laws of trade?

"The first method, namely, the control of the price by the manufacturer, as you all know, has been in vogue for some years past. Although it has its advantages, we cannot overlook the fact that one of our states after another has passed laws to prohibit the control of the price of a commodity after the title or ownership has passed to another. Further, we know that such restriction on the part of the manufacturer may be said to have the effect of 'holding an umbrella' for such other manufacturers as sell their goods direct to the retail trade, or for such as sell them to the wholesaler without restriction.

"It would therefore seem as though the question of the price between the wholesaler and the retailer is one that should be more properly regulated by the wholesalers themselves, and that the organization of the National Shoe Wholesalers' Association of the United States has now reached a stage of perfection where this important matter can, with safety and justice to all concerned, be left in their hands.

"It is the ambition of the United States Rubber Co., first, to

manufacture the best rubber boots and shoes that can be made; second, to maintain the quality and standard of its goods at all hazards; third, to sell the largest quantity possible; and fourth, to be satisfied with a small margin of profit. The goal we seek is to supply substantially all the rubber footwear consumed in the United States, and we wish to have a policy broad enough to enable us to come as nearly as possible to its attainment. The United States Rubber Co. at present supplies about three-fourths of the rubber footwear sold in this country. All of the large and prosperous rubber boot and shoe companies, including those originally licensed under the Goodyear patent more than a half century ago, and those who since, by long years of successful manufacture, have built up valuable trademarks, are now included in the United States Rubber Co.

"We want your coöperation in the future as in the past in distributing our great product. We want to still further increase the volume of our business, and we want you to help us to do so.

"It is our belief that the system which has prevailed for some years past, of our attempting to regulate your prices to the retailer, is injurious to the manufacturer, is against the natural laws of trade, and has passed its usefulness; and that you, through your well organized associations, are in a better position to control the matter than we are.

"Let us have your hearty coöperation this year, and if we find defects in what we are now attempting to do, we can correct them another season. Policies should change with changed conditions. A company with a limited capacity and high reputation for its goods would sell its product under almost any conditions, but a great concern like the United States Rubber Co., with the ambition to supply as nearly as possible all the rubber footwear consumed in the United States, must, I believe, have a breadth of policy in the sale of its goods commensurate with its undertaking.

"It is my opinion that the rubber manufacturer should sell to the wholesaler, and should be satisfied with a small percentage of profit, looking to a large volume of business to bring about satisfactory results, and that the manufacturer should leave to the wholesalers the question of regulating the prices at which they shall resell to the retailer the goods which they have purchased and own, and that the prosperity of the one must in the end lead to the prosperity of the other. We are both embarked upon the same voyage.

"I cannot close without thanking the wholesalers of rubber

footwear in the United States for their long continued loyalty to the United States Rubber Co. I assure you it is appreciated. We hold you as our friends, and we are yours. We ask you to coöperate with us in the future as you have in the past, to the end that we, by our united efforts, may bring to the consumer the best articles of rubber footwear that can be manufactured, at the lowest prices possible, and with a fair margin of profit to us both."

* * *

THE officers of the Shoe Wholesalers' association are: George Hutchinson, Boston, president; O. C. Smith, Chicago, Daniel P. Morse, New York, and J. K. Orr, Atlanta, vice presidents; George C. Houghton, Boston, secretary and treasurer. The plan of organization includes a "rubber committee," composed this year of *Irving R. Fisher*, of Nathaniel Fisher & Co., New York; *A. H. Berry*, of A. H. Berry Shoe Co., Portland, Maine; *J. W. Craddock*, of Craddock, Terry & Co., Lynchburg, Va.—all of whom served last year—and *William Logie*, of Grand Rapids, Mich.

GERMAN ELECTRICAL WORKS COMBINING.

THE work of amalgamating the electrical industries of Germany has made marked progress of late. In December a working agreement was reached between the Allgemeine Elektrizitäts-Gesellschaft and the Union Elektrizitäts-Gesellschaft, both of Berlin. Each is to retain a separate corporate status, but directors of each company will sit on the board of the other. Each company will confine its efforts to the special field for which it has proved itself best fitted, instead of both competing in the whole electrical trade. The new arrangement is to be effective for 35 years from July 1, 1903, combined net profits to be distributed in the ratio of 3 to 2 to the shareholders of the Allgemeine and Union companies.

The Allgemeine Elektrizitäts-Gesellschaft, founded in 1883 as the German Edison Electric Co., assumed their present name in 1887. The capital now is 60,000,000 marks. The dividend was 15 per cent. in 1897-98 (on 47,000,000 marks); 15 per cent. for the next two years on the present capital; 12 per cent. in 1900-01, and 8 per cent. last year. The average rate for nine years has been 12.56 per cent.

The Union Elektrizitäts-Gesellschaft was founded in 1892, to control the Thomson-Houston patents in Germany and several other Continental countries. The capital is 24,000,000 marks, and there is an issue of bonds of 1,000,000 marks, the proceeds of which have not been drawn upon. Dividends for nine years past have averaged 8.89 per cent.

Now, it is reported, a decision to unite has been made by the boards of two other great companies, subject to the approval of their shareholders—the Siemens & Halske Actiengesellschaft (Berlin) and the Elektrizitäts-Aktiengesellschaft vormals Schlickert & Co. (Nürnberg). The capital of the Siemens & Halske company is 54,500,000 marks, and there is a bond issue of 29,230,000 marks. The dividend rate was 10 per cent. for the four years ending 1899-1900; 8 per cent. in 1900-01, and 4 per cent. last year. The capital of the Schukert company is 42,000,000 marks, plus 28,000,000 marks in the Continental Financing Co. Though the profits amounted to 6,240,000 marks in 1900-01, the company were obliged to pass their dividend, and no dividend was declared last year.

The two companies last named, it is understood, will share equally in a new company capitalized at 90,000,000 marks, the arrangement to take effect in April.

It is now felt that bottom has been touched in the depression which the electrical industry has shared with many other

branches of business in Germany. In order to be better prepared for taking advantage of the improved conditions in prospect, the electrical concerns seem disposed to wipe out their "watered capital," and to check the reckless competition which, in former years, has prevented the realization of profits commensurate with the volume of business. One consideration of weight is that most of the companies mentioned have invested capital in electrical works in Russia, without the results hoped for, and by concentration of interests in that field it may be possible yet to develop a profitable business. Besides, the management of the companies under the new régime is likely to be directed less by the banking interests concerned. The prospect is that more uniform prices will be fixed by agreement between the two great combinations.

It appears that the Russian Siemens & Halske Co. (St. Petersburg), with a paid up capital of 7,000,000 rubles [= \$3,598,000], closed the business year 1901-02 with a loss of 299,690 rubles, after having earned a dividend of 2½ per cent. in the previous year. Sales were smaller last year, and prices lower. The Russian Schlickert Co. (St. Petersburg) also has failed to fulfil its anticipations. Net profits for 1900-01 amounted to 143,516 rubles, which amount was carried forward, instead of being disbursed in dividends. The balance sheet for last year shows this amount to have been lost, and 13,690 rubles in addition. The Schlickert company were lately considering the forming of a new company to take over a concession granted for erecting and operating a central station at Warsaw, to avoid the loss of a forfeit of 200,000 rubles [= \$102,800]. One trouble with the Russian factories, based on German capital, is that they have been undersold by other firms in Germany, and the Russian ministry probably will be asked for an advance in duty.

Nearly all the German electrical firms have joined a new association for the protection of their common interests, which has shown favorable results already in the promotion of their export trade. Relations have been established with the government, whereby valuable communications are received from various quarters, and the efforts of the association are supported in other ways by the authorities.

From the returns of the imperial statistical office the following items of German exports for two years have been selected, as representing the chief lines of production of the electrical manufacturing companies for foreign consumption:

	1902.	1901.
Electrical machinery.....	marks 25,520,000	19,935,000
Telegraph and telephone supplies.....	11,020,000	9,549,000
Rubber or Gutta-percha insulated cables....	3,358,000	5,600,000
Other insulated electric cables.....	10,429,000	14,523,000

These values, for each of the two years, aggregate about \$12,000,000 in American currency. The figures were even larger for 1900, the last year before the business depression.

In this connection may be mentioned the exports of electrical machinery from the United States, by fiscal years, which have been separately listed by the customs officials only during five years past as follows:

	1897-98.	1898-99.	1899-00.	1900-01.	1901-02.
	\$2,052,564	\$2,736,110	\$4,340,992	\$5,812,715	\$5,379,746

Exports of electrical apparatus, other than machinery amounted in value in 1901-02 to \$3,631,759, making a total of electrical wares for the year of \$9,011,505. Exports of electrical apparatus, prior to last year, were embraced with other goods.

British official returns relating to "electrical goods and apparatus" evidently do not embrace machinery, which is included in the same tables with other machinery. So far as the returns are available, the figures show:

	1900.	1901.	1902.
Imports.....	£ 1,265,946	£ 849,257	£ 684,974
Exports.....	2,801,401	3,147,985	2,835,905

RECENT RUBBER PATENTS.

THE UNITED STATES PATENT RECORD.

ISSUED JANUARY 6, 1903.

- N**O. 717,614. Composition horseshoe. George J. Peacock, Buffalo, New York.
- 717,674. Tobacco-pouch. Edward Hafer, Cincinnati, Ohio.
- 717,830. Dress shield. Leta M. Ferguson, Washington city.
- 718,053. Water bag [with exterior removable bag or cover]. Thomas Gregory, Akron, Ohio, assignor of one-half to Thomas W. Miller, Akron.

Trade Mark.

- 39,612. Fountain pens. Guiterman, Rosenfeld & Co., New York city. *Essential feature*—The word "Alderman." Used since January 29, 1900.

ISSUED JANUARY 13, 1903.

- 718,121. Seamless rubber balloon. David Harris, Brooklyn, New York, assignor to Rubber Balloon Co. of America, Brooklyn.
- 718,148. Apparatus for setting rubber tires. Frederic A. Orcutt, Florence, Massachusetts.
- 718,149. Abdominal truss. Henry W. Pell, Rome, New York.
- 718,202. Fountain syringe. James Hardman, Jr., Belleville, New Jersey, assignor to Hardman Rubber Co.
- 718,244. Supporting shoe for vehicles with air tires. Leon Combrun, Clichy-on-the-Seine, France.
- 718,251. Hand stamp. Benjamin B. Hill, Philadelphia, Pennsylvania, assignor to the B. B. Hill Manufacturing Co., Philadelphia.
- 718,275. Wheel for road vehicles [with elastic balls between the steel tire rim and felly]. Glencairn S. Ogilvie, Woodbridge, England.
- 718,286. Molding and vulcanizing apparatus [for rubber stamp work and the like]. Richard H. Smith, Springfield, Massachusetts.
- 718,331. Furniture nail, [with head consisting in part of rubber]. Robert L. Ellery, Portsmouth, New Hampshire, assignor to Morley Button Manufacturing Co., Saco, Maine, and Boston.
- 718,392. Overshoe for horseshoes. Charles Scudder, Trenton, New Jersey, assignor to Horace G. Hough and George B. LeBarre, Trenton.
- 718,405. Electric cut-out. Charles Wagner, Brooklyn, New York, assignor to Edward F. Caldwell & Co., New York city.
- 718,408. Truss pad. William C. Wetmore, Buffalo, New York.
- 718,421. Hernial truss pad. Dudley Brisky, Milltown, Alabama.
- 718,439. Cellular rubber tire for vehicles. Alfred Ducasble, Asnières, France.
- 718,470. Respirator. Harold E. Jones, Racine, Wisconsin.
- 718,526. Cushion tread for heel. Henry F. Rooney, Randolph, assignor to Mellen Bray, trustee, Newton, Massachusetts.
- 718,527. Apparatus for waterproofing textile fabrics. Finch Rushworth, Bradford, England.

ISSUED JANUARY 20, 1903.

- 718,645. Elastic [solid] wheel tire. William C. Lilly, Akron, Ohio.
- 718,652. Finger guard. Duncan McMillan, Brooklyn, New York.
- 718,696. Vehicle tire. John S. Chenhalls, Plymouth, England.
- 718,850. Cycle saddle. Johannes A. Kruseman, Lisse, Netherlands.
- 718,958. Massaging apparatus. Fenton B. Turck, Chicago, Illinois.

Trade Mark.

- 39,666. Elastic belting. The C. A. Edgarton Manufacturing Co., Shirley, Massachusetts. *Essential feature*—The word "Ball Bearing." Used since September 10, 1902.

ISSUED JANUARY 27, 1903.

- 719,023. Vehicle wheel [with a series of separately inflatable tire sections]. Charles Miller, Binghamton, New York.
- 719,042. Packing [for stuffing boxes, of textile fiber and India-rubber]. Wilhelm Reinhold, Berlin-Reinickendorf, Germany.
- 719,162. Hoof pad. August C. Tappe, Cincinnati, Ohio.
- 719,179. Vehicle tire. Frank P. Brining, Westgrove, Pennsylvania.
- 719,184. Closing head or stopper for bottles. George G. Campbell, Rochester, New York.
- 719,203. Tire [of ground rubber scrap, ground tire rubber, and rubber cement]. Edward A. Arcouet, Chicago, Illinois.
- 719,320. Vehicle tire fastener. Jacques C. Haines, Chicago, Illinois, assignor of two-thirds to William E. Huber and Chester Haines, Chicago.

- 719,344. Snow excluder [consisting of an inflatable tube, around the ankle, at the top of a shoe]. Levi L. Leathers, St. Albans, Maine.
- 719,352. Finger pad. Joseph G. Marsh, Manchester, New Hampshire, assignor of one-half to Henry A. Farrington, Manchester.

[NOTE.—Printed copies of specifications of United States patents may be ordered from THE INDIA RUBBER WORLD offices at 10 cents each, postpaid.]

THE BRITISH PATENT RECORD.

[* Denotes Applications from the United States.]

APPLICATIONS—1902.

- 25,769. J. P. Cochrane, Glasgow. Manufacture of golf balls. Nov. 24.
- 25,779. R. Gornall, Pilling, Lancashire. Method of attaching rubber tires to vehicle wheels. Nov. 24.
- 25,810. A. Hopton, 124, Euston road, London. Method of fitting elastic tires to vehicle wheels. Nov. 24.
- 25,882. A. J. Boulton, 111, Hatton garden, London. Unpuncturable pneumatic tire cover. (G. F. Brown, New South Wales.) Nov. 24.
- 25,951. W. Balassa, Liverpool. Resilient tire. Nov. 25.
- 26,074. T. Moore, 4, South street, Finsbury, London. Detachable rubber heel. Nov. 26.
- 26,103. J. W. Brierley, Manchester. Pneumatic tire. Nov. 27.
- 26,134. J. Findlay, Glasgow. Punctureproof lining for pneumatic tires. Nov. 27.
- 26,152. O. R. Fischer, Barmen, Germany. Caoutchouc cement. Nov. 27.
- 26,155. W. Hillman, Southampton buildings, London. Manufacture of golf balls. Nov. 27.
- 26,159. L. von der Heide and C. von der Heide, 81, High Holborn, London. Boots with elastics. Nov. 27.
- 26,181. C. H. Gray and T. Sloper, 111, Hatton garden, London. Pneumatic tire. Nov. 27.
- 26,182. C. H. Gray and T. Sloper, 111, Hatton garden, London. Elastic tire. Nov. 27.
- 26,183. C. H. Gray and T. Sloper, 111, Hatton garden, London. Rubber threads. Nov. 27.
- 26,208. G. Tupinier and R. Personne de Sennevoy, 111, Hatton garden, London. Puncture closing device for pneumatic tires. (Date of application in France, March 7, 1902.) Nov. 28.
- 26,370. J. A. Mays, 1, Belsize terrace, London. Pneumatic tire and tire fabric. Nov. 29.
- 26,426. T. J. Cross, Cork. Wired-on rubber tire for motor cars. Dec. 1.
- *26,435. Mc I. J. D. Carter, Holborn, London. Fountain penholder. (A. Walters, United States) Dec. 1.
- 26,140. W. S. Dunker, Ilford, Essex. Pneumatic and solid rubber tires. Dec. 1.
- 26,457. S. Butler, 33, Cannon street, London. Means of preventing side slip in rubber tires. Dec. 1.
- 26,514. M. Purser, Jr., Carlow, Ireland. Non slipping tire cover for motors and cycles. Dec. 2.
- 26,524. B. Birnbaum & Son, Limited., and H. B. Birnbaum, London. Improvement in waterproof garments. Dec. 2.
- 26,528. J. A. Mays, 1, Belsize terrace, London. Elastic tire. Dec. 2.
- 25,576. F. Symons, 46, Lincoln's Inn fields, London. Cushion for horseshoes. Dec. 2.
- 26,577. J. Classen, 18, Buckingham street, London. Reversible heel pad. Dec. 2.
- 26,648. V. P. Smith, 173, Fleet street, London. Pneumatic vehicle tire. Dec. 3.
- 26,650. M. Vivian, Chiswick, London. Rubber motor and cycle tire and method of attaching same. Dec. 3.
- 26,670. W. E. Carmont, 173, Fleet street, London. Elastic tire for vehicles. Dec. 3.
- 26,713. W. W. Becks, Finsbury park, London. Babies' rubber spoon and teething pad. Dec. 4.
- 26,730. S. T. Richardson, and R. Price, Birmingham. Pneumatic tire. Dec. 4.
- 26,745. R. Smith, Tottenham, London. Punctureproof band for use inside of pneumatic tire covers. Dec. 4.
- 26,814. E. A. Streatten, Birmingham. Pneumatic tire. Dec. 5.
- 27,117. J. Bailey, Birmingham. Elastic belt. Dec. 9.
- *27,135. H. H. Lake, Southampton buildings, London. Manufacture of dress shields. (The Canfield Rubber Co., United States.) Dec. 9.

- 27,167. W. H. Wheatley, 40, Chancery lane, London. Waterproof cement for leather, Balata, etc. (C. A. Persson, Sweden.) Dec. 9.
- 27,217. C. H. Gray, 111, Hatton garden, London. Golf ball. Dec. 10.
- 27,224. E. Cushing, Dorking, Surrey. Self-fixing solid rubber tire for motors and cycles. Dec. 10.
- 27,263. W. Holtzheuer, Finsbury, London. Tool for attaching outer covers of tires to wheel rims. Dec. 10.
- 27,292. W. Millar, Glasgow. Golf ball. Dec. 11.
- 27,311. G. S. Gulston, Derwydd, Carmarthenshire. Protection for wheel tires. Dec. 11.
- 27,358. Margaret Maguire, Finsbury, London. Dress shield and means of attaching it. Dec. 11.
- 27,362. La Société Veuve A. Fayaud Fils et Gendre, 53, Chancery lane, London. Manufacture of dress shields. (Date of application in France, Oct. 27, 1902.) Dec. 11.
- 27,407. J. P. Cochrane, Glasgow. Manufacture of golf balls. Dec. 12.
- 27,420. M. Purser, Jr., Carlow, Ireland. Non slipping cover for pneumatic tires. Dec. 12.
- 27,442. M. D. Rucker, 165, Fenchurch street, London. New elastic material. Dec. 12.
- 27,454. D. P. Goodwin, Birmingham. Motor tire. Dec. 12.
- 27,530. H. Loewy, Liverpool. Manufacture of molded elastic goods. Dec. 13.
- 27,713. J. E. Atkinson, Birmingham. Method of fastening rubber heels to boots. Dec. 16.
- 27,798. A. E. Schurr, 27, Holborn, London. Pneumatic tire for motors. Dec. 16.
- 27,878. P. Dick, Southampton buildings, London. Apparatus for molding golf balls. Dec. 17.
- 27,946. K. Wright, Glasgow. Detachable heel pad. Dec. 18.
- 27,951. P. McCulloch and C. McCulloch, Fort William, Invernesshire. Pneumatic tire protector. Dec. 18.
- 27,971. C. Boidot, 165, Queen Victoria street, London. Elastic tire for vehicle and cycles. Dec. 18.
- 27,980. S. Fox, 46, Lincoln's Inn fields, London. Pneumatic tire. Dec. 18.
- 27,989. E. Kempshall, Southampton buildings, London. Manufacture of golf balls. (Date of application in the United States, Dec. 18, 1901.) Dec. 18.
- 27,994. W. F. Williams, 53, Chancery lane, London. Elastic tire. Dec. 18.
- 28,017. H. Bilsborough and J. Cliff, Alderley Edge, Cheshire. Hoof pad. Dec. 19.
- 28,031. R. McDougall, Manchester. Golf ball. Dec. 19.
- 28,073. R. Wilkinson and H. Miller, 18, Holborn viaduct, London. Pneumatic vehicle tire. Dec. 19.
- 28,106. A. F. Spooner, 323, High Holborn, London. Pump for inflating tires. (La Compagnie Française des Nouvelles Pompes à Air, France.) Dec. 19.
- 28,107. G. A. Priestley, Strand, London. Tire for cycles and motors. Dec. 19.
- 28,243. T. H. Walker, J. A. Ellis, S. C. Teacher, and C. Benson, 47, Chancery lane, London. Leather outer cover for pneumatic tires. Dec. 22.
- 28,253. J. T. Day, 4, South street, Finsbury, London. Pneumatic tire. Dec. 22.
- 28,299. J. A. Mays, 1, Belsize terrace, London. Pneumatic tire. Dec. 23.
- 28,302. J. Weinberg, Manchester. Improved Inverness macintosh. Dec. 23.
- 28,400. A. J. Boulton, 111, Hatton garden, London. Device for inflating pneumatic tires. Dec. 23.
- 28,410. H. F. Newman, Southampton buildings, London. Waterproofing composition. Dec. 23.
- 28,447. E. Liley, Cardiff. Elastic attachment for garment suspenders. Dec. 24.
- 28,467. H. Spicer, 73, Cheapside, London. Improvements in tires and wheels for cycles and motors. Dec. 24.
- 28,522. H. J. Haddan, 18, Buckingham street, Strand, London. Undeformable air chamber for the manufacture of pneumatic tires. (J. Lacroix, France.) Dec. 24.
- 28,567. J. B. Scammell and E. A. Muskett, 56, Leadenhall street, London. Artificial Gutta-percha. Dec. 27.
- 28,568. A. A. Wade, Leeds. Improvements in pneumatic tires, handle bars, and saddles, for cycles. Dec. 27.
- 28,574. A. Paterson, Glasgow. Manufacture of golf balls. Dec. 27.
- 28,584. E. B. Killen, Belfast. Unpuncturable pneumatic tire. Dec. 27.
- 28,640. C. D. Abel, Southampton buildings, London. Manufacture of a substitute for Gutta-percha. (Siemens & Halske, Actiengesellschaft, Germany.) Dec. 27.

PATENTS GRANTED.—APPLICATIONS OF 1901.

[Complete specifications have been printed of the following patents, since our last report, the numbers and dates given relating to the original applications, noted already in THE INDIA RUBBER WORLD.]

- 15,931. Diving dress. [Consists of rubber coated canvas with inflatable air tight chambers; or, may be modified to be stuffed with horse hair, compressed air being dispensed with.] G. V. White, Thursday Island, North Queensland, and F. Summers, North Sydney, New South Wales. Aug. 8, 1901.
- 16,021. Protected solid rubber tire for motors. A. C. Sievers, Kensington. Aug. 9, 1901.
- *16,185. Rubber calk pads for horseshoes. H. H. Lake, 45, Southampton buildings, London (O. E. Dyson, Chicago, United States.) Aug. 12, 1901.
- 16,238. Pneumatic tire with outer cover provided with tread of special fabric. N. Greening and E. Sherlock, Warrington. Aug. 13, 1901.
- 16,439. Pneumatic tire cover [the threads of which can be separated in places to allow access to the air tube.] A. Bodenheimer, 59, Hatton garden, London. Aug. 15, 1901.
- 16,462. Pneumatic vehicle tire. J. S. Chenhalls, Plymouth. Aug. 16, 1901.
- 16,496. Reservoir [fountain] pen. A. P. McCarthy, Surrey. Aug. 16, 1901.
- 16,505. Waterproofing composition. [Consisting of tars, resins, and tallow, to which India-rubber or Gutta-percha may be added.] M. Olsen, Odense, Denmark. Aug. 16, 1901.
- 16,606. Inflatable handle for motors and cycles. A. E. Rowland, Liverpool. Aug. 19, 1901.
- 16,749. Inflating valve for pneumatic tire. C. Davies, 69, Horsford road, London. Aug. 20, 1901.
- 16,809. Baby soother. E. Dickens, Leytonstone, Essex. Aug. 21, 1901.
- 16,889. Pneumatic tire [with outer cover of leather or fabric and metal to prevent slipping and puncturing]. Baron P. de Caters, Berchem, Belgium. Aug. 22, 1901.
- 16,972. Pneumatic tire cover [reinforced by closely embedded U shaped wire staples]. A. L. Cudey, Fontaine-le-Bourg (Seine), France. Aug. 22, 1901.
- 17,033. Pneumatic tire cover [protected by an inner layer of hide]. W. P. Thompson, 322, High Holborn, London. (Koch & Palm, Elberfeld, Germany.) Aug. 24, 1901.
- 17,034. Means for inflating pneumatic tires by the motion of the vehicle. H. Glier and W. Taubenheim, Neu Weissensee, Germany. Aug. 24, 1901.
- 17,099. Pneumatic cushion sole for boots. J. Hoare, 40, Sandringham road, London. Aug. 26, 1901.
- 17,239. Solid rubber vehicle tire. S. Ingham, 49, Marmion road, London. Aug. 28, 1901.
- 17,263. Inflating valve for pneumatic tires and saddles. H. Lucas, Birmingham. Aug. 28, 1901.
- 17,284. Inflatable tree for boots. F. H. Willis, Northampton. Aug. 29, 1901.
- 17,413. Label attached to golf balls during their manufacture. R. K. Gray, 106, Cannon street, London. Aug. 30, 1901.
- 17,444. Wrinding machine [for use in connection with letter copying presses]. F. C. Bosen, Hamburg, Germany. Aug. 30, 1901.
- 17,463. Arched spring wire vehicle tire with rubber and canvas cover. W. T. G. Ellis and T. A. Jebb, Glasgow. Aug. 31, 1901.
- 17,505. Pneumatic tire [in sections, each of which is provided with an inflating valve]. J. J. Connolly, Cavan, Ireland. Aug. 31, 1901.
- 17,645. Horseshoe pad. H. Biles, Ealing Dean, Middlesex. Sept. 3, 1901.
- 17,686. Inflating valve for tires. H. Lucas, Birmingham, and T. Sloper, Devizes, Wiltshire. Sept. 4, 1901.
- *17,784. Elastic woven fabric [for stocking suspenders, and the like.] A. M. Ziegler, Boston, United States. Sept. 5, 1901.
- 17,947. Valve fitted with India-rubber plug for bottle stoppers, for aerated liquids. H. V. R. Read and A. J. Campbell, Broad Street avenue, London. Sept. 7, 1901.
- 17,954. Vehicle tire [having within metal segments fitted with helical springs]. W. E. Carmont, Kingston-on-Thames. Sept. 7, 1901.
- 18,146. Rubber vehicle tire [composed of sectional blocks held in place

by two circumferential wires; the tires may also be enclosed in a cover]. J. Eckersley, Preston, Lancashire. Sept. 11, 1901.

- *18,187. Cushion tire and rims therefor for vehicles. W. F. Ellis and E. C. Davis, Springfield, Massachusetts, United States. Sept. 12, 1901.

THE GERMAN PATENT RECORD.

PATENTS GRANTED—1903.

- 139,582 (Class 244). Manufacture of varnish from Caoutchouc. Dr. Zühl and Eismann, Berlin. Jan. 21.
139,648 (Cl. 39a). Process for covering fabric of "Prunello" shoes with film of rubber. P. M. Matthew, Edinburgh, Scotland. Jan. 21.
139,485 (Cl. 63c). Air tires. J. McCanna, London, England. Jan. 21.
139,598 (Cl. 63c). Elastic hollow tire with solid core. W. F. Williams, London, England. Jan. 21.

PATENTS WITH MODELS FILED.

- 189,282 (Class 3b). Clamps for clothes rack, with rubber protecting inserts. Imhof, Bochkoltz and Vogeler, Barmen. Dec. 24, 1902.
189,219 (Cl. 154). Rubber type attached to wooden blocks, connected with a rubber band, in a frame, for continuous printing. O. Berckhauer, Leipsic. Dec. 24.
189,289 (Cl. 37d). Appliance for sealing windows, consisting of rubber tube inserted in rabbet in the casing. J. Eichin, Goepfingen. Dec. 24.
189,471 (Cl. 11e). Elastic band with metal hooks, for binding together loose leaves, letters, or scraps. A. Schunn, Villingen, Baden. Dec. 31.
189,745 (Cl. 53b). Glass cover with reverted rim upon rubber packing, for closing kitchen vessels. Warmbrunn, Quilitz & Co., Berlin. Dec. 31.
189,443 (Cl. 71a). Malt shoes with interchangeable metal soles and metal heels provided with India-rubber calks. Mrs. Hermann Duhme, Jr., Schwerte (Wurttemberg). Dec. 31.
189,789 (Cl. 71b). Heel and sole protectors with metal plates over interchangeable rubber inlays. A. W. Mantle and J. P. Frisby, Desborough, England. Dec. 31.
190,167 (Cl. 3a). Garter with elastic insertion. E. C. Rubbel, Barmen. Jan. 7, 1903.
189,392 (Cl. 3b). Suspenders of one piece of rubber band with ring connections for button strips. A. Grueninger, Augsburg. Jan. 7.
189,985 (Cl. 30d). Elastic pin cushion with coating of rubber. F. Pollman, Berlin. Jan. 7.
189,814 (Cl. 47f). Rubber hose with lining of gelatine. Vereinigte Hansschlauch- und Gummiwaaren-Fabriken zu Gotha, A.-G., Gotha. Jan. 7.
190,012 (Cl. 47f). Thickly woven cotton texture with coating of Caoutchouc for steam or water packing. Dollfus and Nowak, Mulhausen, Alsace. Jan. 7.
189,972 (Cl. 70d). Leaf turner in form of ribbed rubber finger stall. A. Philipp and H. Werner, Dresden. Jan. 7.
189,984 (Cl. 70). Tube provided with rubber casing over its mouth for applying paste or glue. E. A. Henn, Freiburg. Jan. 7.
190,095 (Cl. 71a). Shoe of one piece with elastic sides. I. C. Martin Sohne, Tuttlingen. Jan. 7.
190,214 (Cl. 3b). Adjusting band with rubber insert for cravats. R. Wirth, Ratibor. Jan. 14.
190,306 (Cl. 33a). Rubber casing fastened to an umbrella stick below the handle. E. Kronenberg, Ohligs. Jan. 14.
190,315 (Cl. 33b). Closure for ladies' wraps, of rubber cording. C. Koch, Hanau. Jan. 14.
190,627 (Cl. 30f). Massage implements made from waste hard rubber plates, in the shape of fingers. C. M. Nowotny, Vienna. Jan. 21.
190,767 (Cl. 44b). Spring top match box of hard rubber. New York-Hamburger Gummiwaaren-Compagnie, Hamburg. Jan. 21.
190,949 (Cl. 44b). Hard rubber match box with tubular casing. New York-Hamburger Gummiwaaren-Compagnie, Hamburg. Jan. 21.
190,837 (Cl. 47b). Rubber hose wound with tarred cordage vulcanized upon it, and an extra coating of rubber outside. H. Schwippe, Hoerde. Jan. 21.
190,738 (Cl. 53b). Rubber caps for sterilized milk bottles. A. Baumert, Berlin. Jan. 21.

APPLICATIONS.

- 8,364 (Class 63c). Process for closing and uniting ends of inner tubes for tires. C. E. A. Esse, Omskirk, England. Dec. 24, 1902.
17,058 (Cl. 71b). E. Liebman, Offenbach o/Main. Dec. 24.

19,361 (Cl. 39a). Manufacture of rubber suction pieces. Schlesische Gummiwaaren-Fabriken, G. Eichler, Breslau. Dec. 24.

16,416 (Cl. 71a). Elastic insert for "Jean François" shoes. C. Breuillard, Paris, France. Jan. 21, 1903.

NEW TRADE PUBLICATIONS.

APSLEY RUBBER CO. (Hudson, Massachusetts) in their 1903 illustrated catalogue and price list of "Apsley" and "Hudson" brands of rubber boots and shoes, include the features of last year's catalogue, with the addition of a heavy "Standard Oil" boot, a motorman's gaiter, and the "Adjustable Invisible" over. The styles are the same, with the addition of the "Rex" mannish toe, for women. Boot prices are lower, while the changes in shoes are in some cases lower and in others slightly advanced. [3¼" × 6". 72 pages.]

GRAND RAPIDS FELT BOOT CO. (Grand Rapids, Michigan) issue for 1903 a priced and illustrated catalogue of rubber boots and shoes, and felt and knit boots. Their brands are "Grand Rapids Felt Boot Co." and "Wolverine Rubber Co." [3¼" × 6". 38 pages.]

MERCHANTS' RUBBER CO. (successors to William Morse & Co., New York) issue Catalogue No. 1—1903, devoted to rubber footwear, and embracing the whole line of the American Rubber Co., with selections from the Woonsocket lines, and also felt boots, combinations, and tennis goods. [3½" × 6". 64 pages.]

UNITED STATES RUBBER CO. (New York) have sent us an "Unlisted List" of rubber footwear not contained in the catalogues of constituent companies; price list of Tennis, Yachting, and Gymnasium Shoes; list of "Rhode Island" brands; and a list of "Connecticut" brands, all in effect from January 1, 1903. Tennis goods prices are unchanged.

THE WHITMAN & BARNES MANUFACTURING CO. (Akron, Ohio) send us a new catalogue (No. 21) of their Mechanical Rubber goods, which is illustrated and gives prices, besides which it is interleaved to afford an opportunity for entering memoranda, which should prove a very feature of great convenience to the dealer having occasion to use the catalogue. The paper is yellow, of a pleasing tint, and the binding is in flexible leather. [5¼" × 6". 42 pages, beside blank leaves.]

KOHLMESCHER & CO., of "The Rubber Store," No. 120 East Fourth street, Cincinnati, Ohio, send us the eighth edition of their illustrated and priced catalogue of Fine Rubber Goods, including druggists' and stationers' sundries, household and toilet specialties, toys and sporting goods. A comparison of this catalogue with the seventh edition, issued two years ago, is interesting as showing how many new specialties are added to these lines from time to time. Rubber sponges appear for the first time, together with several new designs in water bottles, and an extensive assortment of toys. The new catalogue shows progress, too, in respect to the character of the illustrations. All the leading manufacturers in these lines are represented. [6" × 7¾". 152 pages.]

ALSO RECEIVED.

THE Elastic Tip Co., Boston, Massachusetts=Something New in Crutch Tips. 16 pp.

John A. Mead Manufacturing Co., No. 11 Broadway, New York=Ridgway's Patent Belt Conveyors. 24 pp.

Concord Rubber Co., Boston Massachusetts=Concord Rubber Co. and Bunker Hill Rubber Co. grades of Rubber Boots and Shoes. 68 pp.

The Springfield Elastic Thread Co., Inc., Springfield, Ohio=The "Easy Walker" Rubber Heels. 8 pp.

Combination Rubber and Belting Co., Bloomfield, New Jersey=Interlocking Rubber Tire. [Southern Rubber Tire Co.] 8 pp.

MANAOS HARBOR IMPROVEMENTS.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The Manáos Harbour Co., Limited, consisting of the Baron de Rienkewicz; Booth & Co., of Liverpool, Manáos and Pará; The Amazon Steam Navigation Co., Limited; Prütze, Dusend-schön & Co., of Manáos; Heilbut, Symons & Co., of London and Liverpool, and one or two smaller shareholders, have a contract with the Brazilian government, by which they are bound to carry out certain improvements in the port of Manáos, construct a custom house, etc., receiving in return the freehold of all the land that may be reclaimed, and the right to levy tolls for sixty years. The Amazonas state government has leased the pier "15 de Novembro" to The Manáos Harbour Co., Limited, for £40,000 cash, thereby giving the latter a monopoly of loading and unloading steamers at Manáos. The company began work in October, 1902, and have already constructed a timber platform, resting on 2200 piles, with an area of 8750 square meters, for temporary use. All the lumber, by the way, is imported from the United States. They are also constructing, for the immediate needs of the trade, five warehouses of corrugated iron, one 110 × 20 meters and the others 45 × 20 meters.

To obviate the difficulty due to the annual rise and fall of the rio Negro—a difference of 15 meters—the company have obtained from England a pontoon landing stage, 110 × 20 meters, supported on 32 hollow steel cylinders 8½ feet in diameter. On the pontoon they mean to erect three steel towers, each 75 feet high, and three other towers ashore, to be connected by Lidgerwood double Y cableways. The pontoon towers will be equipped with swivel booms, by which cargo will be lifted directly out of the ship's hold and swung into the Lidgerwood cableway. To counteract the thrust of the back legs of the towers, the company's managing engineer, Mr. A. Lavandeyne, has devised an ingenious scheme of arrangement of the pontoons underneath. The company have their own power house and lighting plant and intend to drive all machinery by electricity.

The permanent works will include a quay wall the whole length of the city's water front, 22 meters high, and with an earth backing. This earth backing will be the reclaimed land, and will have an area of 325,000 square meters. Some 475,000 cubic meters of earth will be necessary. On this reclaimed land the company intend to erect eight warehouses, 75 × 20 meters. The company have now one building, 50 × 20 meters. The permanent pontoon landing stage, an imitation of Prince's landing stage in Liverpool, will be 330 meters long and accessible for carts and carriages.

No charge whatever will be levied on passengers and their baggage. By the terms of the Federal contract the Harbour company may levy tolls as follows:

850 reis per day per meter, on ships using the company's landing stage.
3 reis per kilogram on all cargo loaded or unloaded.
An *ad valorem* tax of 1 or 1½ per cent. on goods stored in the company's warehouses.

Mr. Lavandeyne hopes to have the provisional work finished by the end of April, and the permanent work within four years' time. The company intend also to erect a packing-box factory and rubber-cutting machinery, to facilitate the service.

At present, a steamer coming in from upriver casts anchor in midstream, and the rubber or other freight is sent to shore in barges. Arrived on the beach, it is loaded into carts and taken to the consignee's warehouse, where it is weighed, etc., and carted to the buyer's warehouse, boxed, and carted to "15 de Novembro" pier, to be loaded into barges to go aboard the ocean steamer.

Packing-boxes for rubber cost 9 milreis apiece. A kilogram of rubber pays nearly 200 reis in cartage and barge fees, 10 reis cutting and sorting fees, and another 5 or 6 reis for packing, in addition to the export tax of 25 per cent. *ad valorem*. Under the new system the rubber will be lifted out of hold and placed in the Harbour company's warehouse direct, where the cutting and boxing machinery will receive it, and from whence it will be transferred direct to the ocean steamer.

L. G.

Manáos, Brazil, January 26, 1903.

EUROPEAN RUBBER NOTES.

RUBBER RECLAIMING FACTORY IN DENMARK.

UNDER the name Dansk Afvulkaniserings Aktieselskab a company has been formed at Copenhagen, with a capital of 400,000 crowns [= \$107,200], for recovering rubber under patents granted to Albert Theilgaard, a Danish chemist, who will be the technical manager of the enterprise. A factory plant is being erected, but several months are expected to elapse before operations are begun. The board of the new company embraces the director and two professors of the Copenhagen technical high school, a bank director, the director of an important chemical works, and a supreme court attorney. The Copenhagen factory is the first independent rubber reclaiming plant to be established on the continent of Europe. Mr. Theilgaard's patents in the United States and Canada are controlled and are in use by a leading rubber manufacturing company of New York.

GREAT BRITAIN.

THE St. Helen's Cable Co., Limited (Warrington), are meeting with success in their recently added rubber goods department. Lately the Admiralty gave notice of acceptance of part of their tender.

=Tires made by the Diamond Rubber Co. (Akron, Ohio) were exhibited at the first Stanley Automobile Show, Earl's court, London, in January.

=The Goodyear Tire and Rubber Co., Limited, have been registered under the British public companies acts, with A. C. Hillis managing director, and registered offices at 5, Singer street, Tabernacle street, London, E. C.

=The second annual dinner of the employés of the European depôt of the United States Rubber Co. occurred on the evening of January 3, at the Holborn restaurant, London. Major John W. Knott, the company's European manager, spoke encouragingly of their business thus far, and hopefully of the future.

GERMANY.

THE capital of the Rheinische Gummi- und Celluloidfabrik, Actiengesellschaft, at Manheim, will be increased from 2,000,000 to 2,500,000 marks. The company was founded in 1873 with a capital of 900,000 marks, which was increased in 1892 to 1,500,000 and in 1898 to 2,000,000 marks. A dividend of 25 per cent. was earned during the last business year.

=The Continental Caoutchouc- und Guttapercha-Compagnie (Hanover) have declared a 50 per cent. dividend for the business year ended December 31, 1902, against 45 per cent. for the preceding year. Their cycle and motor tire trade has been exceptionally good.

=The Hannoversche Gummikamm-Compagnie, A.-G. (Hanover) have declared a 20 per cent. dividend for the business year ended December 31, 1902, against 12 per cent. for the preceding year.

=The Süddeutsche Kabel-Werke Aktiengesellschaft (Manheim) have reduced their capital from 3,000,000 to 2,400,000 marks.

HIGHER PRICES FOR RUBBER GOODS.

THE *Gummi Zeitung* commends to the German rubber trade serious consideration of a report that the British India Rubber Manufacturers' Association, at a meeting held in Manchester on January 9, resolved that an advance of 10 per cent. should be made on prices of mechanical rubber goods, and quotes also the circular of The B. F. Goodrich Co. (Akron, Ohio), withdrawing all prices, and announcing that new prices will be subject to change without notice, owing to the unsettled condition of the rubber market. The fact that such action has been taken in foreign markets is evidence, to our contemporary, that German manufacturers must take a similar stand, and it suggests that when an advance is made, it should be a substantial one, lest it should soon prove insufficient through a still further advance in crude rubber prices. The *Gummi Zeitung* regards it as significant that an American firm has been the first in this instance, in all the world, to start the price advance, since the American trade has been regarded hitherto as disposed to hesitate to the last moment to adopt such measures.

THE DEMAND FOR RUBBER SHOES.

DEALERS at Cleveland, Ohio, interviewed by the *Leader*, of that city, doubted that so many rubber shoes are worn in Buffalo, though that is a "wetter" town than Cleveland. Their estimates varied from 30 to 50 per cent. of the men, and from 50 to 90 per cent. of the women, who visited their stores, as wearers of rubbers. They were agreed, however, that "people are coming back to rubbers again; no shoe fit for a woman or man to wear is capable of keeping out the slush that Cleveland has experienced lately."

More rubber footwear is sold in Buffalo, New York, according to a shoe dealer in that city quoted by a local newspaper, than in any other city of its size in the United States. He says that during three months, beginning with the middle of December, 99 per cent. of the people who enter his store wear rubbers—not now and then, but every day. The reason is that there is snow or ice on the streets constantly during these months, and rubbers are worn as a protection against slipping as well as for keeping the feet dry. The same merchant says that this fact interferes with the sale of leather shoes to a material degree, for the reason that rubber prevents leather goods from wearing out.

A Boston merchant is reported in the *Boot and Shoe Recorder* as expressing the opinion that a good demand for rubber shoes—such as has existed this winter—is a great help to the retail trade generally. It is because so many people who enter a store to buy a pair of rubbers—something they are obliged to have—linger to make other purchases. But for the rubbers they would stay away from the stores, and anything that brings possible customers within reach of the salesmen is welcomed as a means of pushing trade.

AMERICAN WOOD TIRES IN FRANCE.

THE American consul-general at Paris (Mr. John K. Gowdy, reports: "American wood tires for bicycle wheels, etc.) made of rock maple, with a core of beech, are much appreciated in France on account of their great strength, combined with lightness. The machines used by the trick performers, who jump down 10 feet onto a bicycle, are always provided with American wood tires. Two years ago these tires were imported, ready made, from the United States, but the demand

for them has become so great that it has become necessary for the Franco-American Wood Tire Co. to erect a factory, with a 180-horsepower electric engine and patent American machinery, at Méry-sur-Oise, a few miles from Paris. The wood used is, of course, still imported from America."

ADVERTISING "BOSTON" RUBBERS IN EUROPE.

OUR English contemporary concludes a report of the eighth annual International Shoe and Leather Fair, in London—at which many of the exhibits of rubber shoes, heel pads, etc., were of American origin, in the following style:

"But the hit of the Fair was the card which was given out indiscriminately to every passer-by of the stands exhibiting the Boston Rubber Shoe Co.'s goods. It was the picture of a bird clinging to the bars of a cage and looking toward an impression of the Boston Rubber Shoe Co.'s trade mark. At the foot of the card is an old-fashioned couple who are gazing with gaping mouth and up-turned eyes in astonishment at the bird who is supposed to be singing the praises of the goods that bear the above trade mark. Also at the foot of the card are the words 'Squeeze the card.' Even the birds sing the praises of Boston rubbers.' On the reverse side are illustrations of the Boston Rubber Shoe Co.'s leading lines. By pressing the card the bird is made to warble, and continually throughout the evening hundreds of people were making their cards 'sing.' It was a decided novelty, and once again the Boston Rubber Shoe Co. have come out 'on top' in the matter of attractive advertising."

SOME WANTS OF THE RUBBER TRADE.

[278] A WESTERN manufacturer desires to know if there are in use at present any of the following brands on red sheet packing: Dragon, Robin, Meteor, Comet, Jupiter. Or for rubber lined cotton hose, as follows: Marine, Mascot, Sphinx, Alert, Volunteer, Gulf Stream, Marquette, La Salle, Joliet.

[279] "Will you kindly give us the name and address of some of the European manufacturers of Balata belting?"

[280] From a Western town: "I should like some information regarding the cost of a small plant for reclaiming rubber from old boots and shoes and other forms of scrap."

[281] From an Eastern town: "Can you give us the names of firms making magnet machines for reclaiming plants?"

[282] From Holland: "We have an enquiry from our agents in the Dutch East Indies, for mechanical apparatus for the manufacture of Gutta-percha from leaves. Can you advise us of the makers of such machines?"

[283] From a jobbing house: "Could you inform us who make a rubber dental cuspidor?"

[284] From another jobbing house: "Can you advise us where we can buy rubber ends for cocoa matting?"

[285] "Where can we purchase rubber ventilators, such as are used in air mattresses, cushions, pillows, etc.?"

THE "Diary and Year Book for 1903," issued by the publishers of the London *India-Rubber Journal*, contains the same features as in former years, besides being more complete in the various departments. In addition to statistical and other reference matter designed for people in the rubber trade, including a directory of trade marks in the British rubber industry, the volume includes blank pages for counting house or factory memoranda for one year. [Maclaren & Sons, 37, Shoe lane, London, E. C.]

THE TEXTILE GOODS MARKET.

THE prediction in these columns last month of a rising raw cotton market appears to have been an accurate forecast. The upward tendency to prices on cotton options and spot offerings, so pronounced during the latter part of January, has continued unabated, the spot cotton in the local market is worth fully a cent a pound more than it was four weeks ago. Manufacturers are endeavoring to cipher out what the market is going to do next, to do which they are compelled to consider the commercial crop during the past three years. Last year it was 10,700,000 bales; the year before 10,400,000 bales, and in 1900 it was 9,435,000 bales. In each of these years the mills consumed more than the crops raised, the consumption during one of these years being at least 1,000,000 bales in excess of the crop. Stocks everywhere in spinners' hands, in foreign ports and here in America, were thus of necessity reduced to the lowest ebb. This was the situation at the opening of the present season. Professional crop estimators having held out hope for 12,000,000 bales, the actual results caused some uneasiness. Spinners were among the most credulous, and they bought from hand to mouth until such time as the receipts left no question as to the real situation. But the spindles soon reached a period where cotton was needed instead of explanations, and spinners awoke to the fact that they had been caught without cotton and with large orders in hand for goods. Then sprung a demand for cotton, and it has been in evidence since, which is the reason for the recent advance in the cost of the staple. Thirteen years ago a condition identical with the present one existed.

One of the curious features of the present situation is that cotton people, with the exception of a few instances, have made little money on the rise. To them 10 cents looked too high, and they were tempted to go short even at 9 cents, much to their subsequent regret and loss. On the other hand, the Stock Exchange following has realized heavy profits. Knowing little and caring less for statistics, they have followed the advice of their brokers, and bought recklessly at prices that would frighten even a wise cotton expert. But when this campaign is over it will be found that the impelling force has been, not the size of the crop, over which the cotton trade is now wrangling, but the phenomenal consumption of cotton goods. The limit has not yet been reached, and still higher prices will be seen. The following figures show prices of spot cotton on each Thursday for February:

	New York.	New Orleans.	Liverpool.
February 5.....	9 05c.	8 1/4c.	4 82d
February 12.....	9 50c.	9 1/4c.	5d
February 19.....	9 80c.	9 1/2c.	5 26d
February 26.....	10 05c.	9 1/4c.	5 30d

Rubber manufacturers in all parts of the United States have been consuming cotton ducks with greater rapidity than the most optimistic of them had anticipated when they placed orders for their supplies last fall. Requisitions have been pouring in at a rate that has made it necessary for the textile mills to keep their looms in full operation at full time. The rubber trade has reason, too, to congratulate itself upon having made a long term contract for cloth at prices much lower than it would be possible for them to do to-day, with raw cotton fully 1 1/2 cents above the range six months ago. It is possible that some rubber mills have not contracted for sufficient stocks to carry them through the year, but it is understood that sellers, in such cases, will accept reorders on the same basis, as the cotton out of which the goods are to be made was bought before the advance, although it is optional with the textile manufacturer as to what course he will pursue in such cases. Belt-

ing manufacturers also are going ahead with increased capacity to meet a fast growing demand, coming largely from the West. Rubber boot and shoe manufacturers have been more keenly impressed than ever before of the advisability of adopting the plan pursued by consumers of duck, that is, to order goods by the year.

It will be seen by the subjoined figures that prices of sheetings have advanced about half a cent per yard since the previous issue of THE INDIA RUBBER WORLD:

Forty-inch, 2.50.....	6 1/4c.
Forty inch, 2.70.....	6 1/2c.
Forty-inch, 2 85.....	6 3/4c.
Forty inch, 3.60.....	5 1/2c.
Thirty-six inch, 3-yard.....	5 3/4c.

The above prices are current quotations, but by the time they reach the eye of the reader it is possible that they will have advanced another fraction, for the market is extremely active and sellers are compelled to hold prices firmly at the top notch. Southern mills are in a well sold condition, and it would be difficult to get satisfactory deliveries on almost any line of sheetings in general use by the rubber trade.

No better evidence is needed that the rubber manufacturers of the Dominion are constantly on the *qui vive* than to call attention to the fact that they are in a very satisfactory position, no matter what the Canadian government may decide to do in reference to tariff matters at the coming meeting of parliament. In anticipation that the cotton duck manufacturers in Canada had reached a point when they would be asking for protection against American goods invasion, these rubber manufacturers have in their possession all the cotton ducks they will require for the present year's consumption. Parliament will meet in Ottawa on March 4, and it is understood that one of the first measures taken up will be the tariff. Of course the rubber manufacturers of the Dominion will oppose the matter, because it will militate against their interest. Having established a 25 per cent. tariff on American cotton ducks, the manufacturers of Canada would at once put the price of their ducks at least 15 per cent. above the present cost of the American product, and the rubber men would be compelled to pay it, as it would be the best they could do under the tariff law. Measures are being taken here, however, that may circumvent whatever may be the outcome of the new tariff movement on the other side of the Niagara.

BALATA INDUSTRY OF SURINAM.

THE discovery of the Balata forests by the expedition under the leadership of Major Bakhuis [reports the German consul at Paramaribo], in the upper Coppename district, ought to assist the development of the Balata industry, which is just beginning to show new signs of life, to a great extent. Experts report that the exploitation is profitable to such a degree to warrant the building of a railroad through the district. The export of Balata from Surinam during the first half of the year amounted to 85,000 kilograms. Owing to excessive rains during this year, tappings to any extent could not be made, as the Balata would be too watery. A deplorable feature has been noted in the Balata exploitation, which is being investigated. It seems that the gatherers in order to increase the quantity, have added inferior saps of rubber-like trees; a practice which materially decreases the value of the product.

THE Österreichisch-Amerikanische Gummifabrik-Aktiengesellschaft (Vienna) have resolved to issue a 4 1/2 per cent. loan of 1,500,000 kronen [= \$304,500], to be financed by the Wiener Bankverein.

NEWS OF THE AMERICAN RUBBER TRADE.

PEOPLE'S HARD RUBBER CO. (AKRON, OHIO.)

AT a special meeting of shareholders of the People's Hard Rubber Co., on February 2, the action of the directors in causing an assignment to be made [reported in the last INDIA RUBBER WORLD] was ratified by the holders of a majority of the stock. Later, on the same day, a petition was filed in the common pleas court, asking that this ratification be set aside, and praying for damages in the sum of \$200,000. There are several plaintiffs, residing in Akron and elsewhere, and representing about 125 shares of capital. The defendants are the present directors of the People's company. On February 2, also, exceptions to the inventory filed in the probate court following the assignment, were filed by Musser & Kohler, attorneys for the minority shareholders. It was set forth that the real estate was appraised at too low a rate, and that no value was placed upon trade marks or secret processes, the shortage in the aggregate valuation being claimed to be \$130,649.77. It was asked that the appraisal be set aside. The hearing of the exceptions was begun before Judge Pardee on February 23, with the expectation that several days would be consumed. Meanwhile the People's plant remains idle.

REPUBLIC RUBBER CO. (YOUNGSTOWN, OHIO.)

AT the annual meeting of the directors on February 9, President Henry K. Wick declined reelection on account of the pressure of other business matters. The officers chosen were:

President—WARNER ARMS.

Vice President—C. H. BOOTH.

Secretary and Treasurer—JOHN TOD.

Superintendent and General Manager—JOHN S. MCCLURG.

The board includes—besides Messrs. Arms, Booth, and Tod—H. K. Wick, John C. Wick, George Tod, H. M. Robinson, and A. E. Adams. A favorable condition of business is reported, there being enough orders in hand to keep the factory well employed.

SWEET TIRE AND RUBBER CO. (BATAVIA, N. Y.)

AT a stockholders meeting on February 13 it was voted to increase the capital from \$80,000 to \$90,000, and the additional issue was subscribed for by those present. It was reported at that time that the factory would probably be ready for operation by the end of the month.

NATIONAL INDIA RUBBER CO.

THE third annual banquet by the company to their employés occurred at the De Wolf Inn (Bristol, Rhode Island), on the evening of February 14. The interior of the inn had been specially decorated. There were about 70 guests. The menu was printed upon miniature rubber coats, made at the National company's factory. Manager H. H. Shepard was toastmaster. Treasurer W. De F. Brown, giving some account of the business of the company, said that in 1900 the payroll amounted to \$295,000, and in 1902 to \$355,000—an increase of \$60,000.—The factory was visited on February 16 by two official representatives of the state of Amazonas (Brazil)—Senhor Porfirio Nogueira, secretary of state, and Senhor Enéas Martins, late inspector of the treasury—who are in the United States on a financial mission for the government at Manaus. After the factory had been inspected, the Brazilians were entertained at dinner at the home of President Samuel P. Colt, together with several other officers of the National company and the United States Rubber Co.—It is stated that the National India Rub-

ber Co. began the month of February with all departments of the factory busy and in need of more help. There were 1385 names on the payroll—only 18 less than the greatest number in the long history of the factory. The National company were reported lately to be making 625 cases of tennis goods daily. The export of these goods is now becoming important.

MISHAWAKA WOOLEN MANUFACTURING CO.

THE sole agency for New England for the "Ball Band" rubber shoes manufactured by the Mishawaka Woollen Manufacturing Co. (Mishawaka, Indiana) is now held by Dunham Brothers, shoe wholesalers and retailers, of Brattleboro, Vermont. This firm hold an annual "school of instruction" for their salesmen, which occurred this year on January 29 and 30. It was attended for the fourth successive year by President M. V. Beiger, of the Mishawaka company. On the evening of January 30 was given the annual banquet tendered by the Messrs. Dunham to all their employés. In an address to the guests Mr. Beiger gave the following figures illustrating the growth of the Mishawaka company—manufacturers of felt boots, and, since 1899, of rubber shoes, for use in "Combination" goods. Beginning in 1889 the sales were \$65,000; in 1890, \$269,000; 1891, \$270,000; 1892, \$317,000; 1893, \$385,000; 1894, \$390,000; 1895, \$514,000; 1896, \$605,000; 1897, \$709,000; 1898, \$1,382,000; 1899, 1,907,000; 1900, \$2,828,000; 1901, \$3,027,000; 1902, \$4,048,000.

STANDARD UNDERGROUND CABLE CO.

THE annual meeting was held at Pittsburgh on January 29. The earnings of last year amounted to \$3,984,531, an increase of \$664,000 over the year before, and the greatest in the history of the company. The surplus, \$265,564 at the beginning of 1901, has been swelled to \$760,350. Meanwhile the company have made large additions to their plants, part of which were paid for by a new stock issue. During 1902 the company paid four quarterly dividends of 2 per cent. and one extra dividend of 2 per cent. The consumption during the year included 8,200,000 pounds of copper wire and 18,126,000 pounds of lead. The new copper rod and wire mills at Perth Amboy, New Jersey—300 × 180 feet, a portion being three stories and basement in height—will hereafter produce from copper bars the wire used by the company in the manufacture of cables and insulated wire, and some will go on the market. The rubber insulation work of the company is now done at Perth Amboy.

ELECTRICAL CONSOLIDATION.

ON February 12 was announced the transfer of the Stanley Electric Manufacturing Co. (Pittsfield, Massachusetts) to a syndicate of capitalists affiliated with the Several Electric Co. The latter company, incorporated in 1892, was the result of consolidating important electrical manufacturing interests, on what was then a gigantic scale of capitalization. Later the capital was greatly reduced, through writing off large patent accounts, etc., after which it was again increased. The outstanding capital is now \$41,880,153, with bonds amounting to \$2,148,490. The company manufacture a wide variety of electrical equipment, at Schenectady, New York, and Lynn, Massachusetts, and have at the former place an extensive plant for insulated wire and cables. Their \$100 shares, listed on the New York Stock Exchange, have sold since January 1, 1903, at from 183 to 202½. The Stanley company, now absorbed, have made a specialty of heavy long distance electric railway systems, em-

playing electric locomotives. The capital was \$3,000,000, a proposition to increase which to \$10,000,000 was under consideration when the consolidation of the Several Electric Co. took place. It is expected, however, that at least \$1,000,000 will be expended by the new controllers in enlarging the Pittsfield plant, which employs 1500 hands.

NEW YORK STOCK EXCHANGE QUOTATIONS.

UNITED STATES RUBBER CO.:

DATES.	COMMON.			PREFERRED.		
	Sales.	High.	Low.	Sales.	High.	Low.
Week ending Jan. 24	1,070	17 1/2	17	210	56	55 1/2
Week ending Jan. 31	510	17	16 3/4	200	52 1/2	52
Week ending Feb. 7	4,770	18 1/2	17	1,627	56 1/2	52 3/8
Week ending Feb. 14	9,210	19 1/2	18	3,775	58	54
Week ending Feb. 20	4,330	18 1/2	17 1/4	3,210	55 1/4	54

RUBBER GOODS MANUFACTURING CO.:

DATES.	COMMON.			PREFERRED.		
	Sales.	High.	Low.	Sales.	High.	Low.
Week ending Jan. 24	13,180	25 1/2	23 3/4	1,745	79 7/8	78
Week ending Jan. 31	4,876	25 3/8	24 1/4	1,050	79 1/2	79
Week ending Feb. 7	11,649	26 1/2	25	3,455	84 1/4	79 1/2
Week ending Feb. 14	15,718	28 1/2	26 1/2	1,919	84	82 1/2
Week ending Feb. 20	17,650	30	28	1,730	84 1/2	83 1/2

IMPROVEMENTS IN FIRE HOSE MANUFACTURE.

DURING the past year the Eureka Fire Hose Co. (New York) have made some important improvements in the special hose weaving machinery employed in making their "Eureka," "Paragon," "Red Cross," "U. S. Underwriter," "New Peerless" jacket, "New Surprise" jacket, and "Monitor" jacket brands of rubber lined cotton fire hose, which have been patented in the United States and other countries, and doubtless will make these high grade goods still more popular with the buying public. With the new looms an extra ply of fine Sea Island yarn is ingeniously woven in the inner surface of the hose, filling the spaces between the strands and thus entirely covering the ribbed or corrugated surface which was unavoidable in the old method of weaving the fabric. This virtually adds another ply to the hose and gives, at least, 25 per cent. additional strength without materially adding to the weight. The "Red Cross" brand, hitherto a single hose, thus practically becomes a double hose, and the "Paragon" and other brands of jacket hose, previously a double hose, become triple, and the "Eureka" is changed from a triple to a quadruple hose. The Eureka company have also put in new special machinery for attaching couplings to fire hose by hydraulic power, by which two operators can attach 250 or more couplings in a day. Gages are attached to the machine so that each coupling receives an equal amount of pressure throughout the process. The hose, after being coupled, is passed to testing tables, built from designs by Vice President B. L. Stowe, which are provided with an attachment for connecting any thread, or, if the hose is ordered without couplings, it is tested by attaching special connections.

CONDITIONS IN THE CARRIAGE TRADE.

THE New York carriage trade journal, *The Hub*, makes a feature of letters from dealers on the business situation. In introducing this feature in the February issue the editor says: "The reports this month continue favorable as a whole, and the general feeling is that the coming season's trade will be fair, but not so hopeful as it has been." The "not so hopeful" expression must refer to the fact that 1902 showed a greater rate of improvement over the past than can be looked for to continue always. The February *Hub* contains letters from 77

dealers, in 16 states, from the Atlantic to the Pacific, and from Michigan in the north to Arkansas in the south. Of these, 40 report a decidedly better trade in 1902 than in 1901; 13 report trade equally good; 19 report smaller sales; and 5 offer no basis for comparison. But 59 letters report good prospects for the present year—many are enthusiastic on this point—and very few of the remainder write that trade prospects are poor.

THE NEW HODGMAN STORE.

THE oldest house in the rubber trade in New York—and the oldest rubber firm in continuous existence in this country—not only has the newest store in this branch in the city, but about the most attractive rubber store that has yet been opened anywhere. Reference is made here to the new headquarters of the Hodgman Rubber Co., at Nos. 806-808 Broadway, opposite Eleventh street. In point of space occupied the store marks an advance over that formerly occupied by the company. The main floor, 50 x 230 feet, extends from Broadway to Fourth avenue, and the basement and subbasement have the same dimensions. The store is exceptionally well lighted—having the advantage of the wide frontage on both the thoroughfares named; a row of windows half the length of the store, opening on the yard of Grace church; and windows on the opposite side of the room, lighted by a spacious court in the center of the block. Every advantage thus is afforded for the displaying of goods, the business offices are well lighted, and a generally cheerful effect is produced. The character of the Hodgman goods is favorable to attractive displays, for which the new store furnishes a desirable setting. The offices of the Messrs. Hodgman and the bookkeeping departments have been newly and tastefully furnished. The basement, devoted to the shipping department and to the storage of goods, is lighted through the sidewalks at the front and the rear, and through windows opening upon the churchyard. In the subbasement are the steam plant, storage room for packing cases, and the like.

BICYCLE TRUST REORGANIZATION.

THE reorganization committee of the American Bicycle Co., William A. Read, chairman, has given notice that the third and final instalment of \$3 a share has been called for payment by the depositors of preferred and common stock, required by the plan and agreement of the committee, the payment to be made to the Central Trust Co. (New York) on or before March 2.

THE CANADIAN DUTY ON RUBBER SHOES.

SOME Canadian newspapers having reported that the desirability of a higher import duty on rubber boots and shoes was one of the subjects discussed at the recent meeting of rubber manufacturers in Montreal, *The Canadian Shoe and Leather Journal* (Toronto) says: "As a matter of fact no mention whatever was made of the tariff, and there was, of course, no decision arrived at to ask for further protection from the government. The manufacturers refused to give these papers any information whatever regarding the question brought up for discussion, and the imagination of the reporter was responsible solely for the erroneous statement made." It is not impossible that, if a member of the association authorized to speak had assured the reporter that the tariff question was not discussed at the meeting, his imagination might not have been given play, and Mr. N. Tetrault, Jr., who represented the shoe manufacturing trade at the rubber men's banquet, might not have "expressed a hope that the rubber manufacturers had discussed the matter of tariff, and [he] thought that the two lines of business should aid each other in having the tariff on footwear raised."—At a meeting of the boot and shoe section of the Retail Merchants' Association of Toronto, according to the *Star* of that city, the question under discussion was the request

of the rubber manufacturers to the government, asking for an increase of duty on rubbers. A resolution was carried asking that the government take no action until it had been waited on by a deputation from the association. It was asserted at the meeting that rubber shoe manufacturers allow a special discount to department stores, which gives the latter an advantage over other retailers, and that if one price was charged to all, sufficient profits could be made all around to render any increase in duty unnecessary.

CANADIAN WATERPROOF CLOTHING TRADE.

WRITING on the situation of the waterproof clothing industry in Canada and the desire expressed for a higher duty on imported goods, in *The Clothier and Haberdasher*, E. L. Rosenthal, manager of The Strathcona Rubber Co. (Montreal), estimates that the proofed cloth imported, valued at \$70,993 for the last fiscal year, amounted to about 170,000 yards. This, he figures, would allow for 45,000 coats. At an average of \$3.50, these should sell for \$157,500—the total probable production of rubber waterproofed coats made in Canada by eight manufacturers. Against these figures, he contrasts the imports of such clothing: \$177,362 in value from Great Britain and \$59,948 from the United States, or a total of \$237,310. With a higher import duty, he believes that the home industry would become able to supply the whole demand, and he pledges his firm not to raise the price of their coats, even if the duty should be advanced to 100 per cent. Of the imports of waterproofed cloth, the United States supplied \$57,765 worth and Great Britain \$13,228.

NEW INCORPORATIONS.

THE Siemon Hard Rubber Co. (Bridgeport), January 24, under Connecticut laws; capital, \$5000. Incorporators: Carl F. Siemon, L. F. Eaton, John Taylor, Herbert L. Smith, and Waldo C. Bryant—all of Bridgeport, Connecticut.

=The Lilly Rubber Manufacturing Co. (Barberton, Ohio), February 13, under Ohio laws; capital, \$10,000. Further details are given on another page, in the news from Akron.

TRADE NEWS NOTES.

EVERY employé of the New York Rubber Co.'s factory at Matteawan, N. Y., on the last weekly pay day for January, received an envelope containing twice the usual sum, with the best wishes of the company, and as a token that the business year just closed had been a prosperous one.

=The Hartford Rubber Works Co. (Hartford, Connecticut) have located their Pacific Coast branch at No. 641 Mission street, San Francisco, to cover all their trade west of Utah. A new equipment for putting on solid tires has been installed and three traveling men are employed. A good order is reported for jinriksha tires, for Japan.

=The Victor Rubber Tire Co. (Springfield, Ohio) have consolidated their Eastern agencies with their branch at No. 1769 Broadway, New York, in charge of James S. Webb, manager, assisted by H. C. Comstock as traveling man.

=John J. Joyce, Jr., has resigned as general manager of the International Automobile and Vehicle Tire Co. (Milltown, New Jersey), to date from March 1.

=T. E. Eustis, for the past ten years treasurer of the Norfolk Rubber Co. (Boston) has sold his interest and retired from the company, being succeeded by William H. Wilder, Jr. Mr. Eustis finds it necessary to devote his entire time to the interests of the Pneumatic Elevator Safety Co., No. 53 State street, Boston, a business established by him about a year ago.

=William F. Stevens, formerly selling agent of the Byfield Rubber Co., is now an assistant to Charles A. Coe, selling agent for the "Wales-Goodyear" brands of footwear at the Boston office of the United States Rubber Co.

=The factory employés of The I. B. Kleinert Rubber Co., at College Point, Long Island, having organized the I. B. Kleinert Employés Benevolent Association, the president of the company, Mr. Kleinert, recently wrote a letter to be read at one of their meetings, commending the objects of the association, and enclosing a contribution of \$250 to their funds.

=The Hodgman Rubber Co. (New York) issue a circular illustrating some extremely new styles in the "Alexombric" line of rain coats, which goods, by the way, are coming into increasing demand.

=The Whitman & Barnes Manufacturing Co., whose business embraces a rubber factory at Akron, have filed a certificate with the secretary of state of Ohio, reducing the capital stock of the corporation from \$5,000,000 to \$2,362,500. On account of the corporation tax, the figure has been reduced to the amount of stock actually issued.

=It is mentioned as a singular fact that no store in Woonsocket, Rhode Island, carries a line of the rubber boots and shoes manufactured there. The employés of the Woonsocket Rubber Co. are allowed to buy such articles for their own use at the factory, but otherwise Woonsocketers wear rubber footwear made elsewhere.

=The American Insulated Wire and Cable Co. (Chicago) closed their first year with a banquet to their employés on the evening of January 10. They are stated to have a capacity of 500,000 pounds of weatherproof wire per month.

=W. B. Smith Whaley & Co., mechanical and electrical engineers and mill architects (Boston, Mass., and Columbia, S. C.), announce that Mr. John O. De Wolf has become associated with them as a partner.

=At the annual meeting of the Warren Rubber Co., a jobbing house at Warren, Ohio, on January 26, the board was re-elected. A dividend of 6 per cent. was paid and an addition made to the surplus.

=The firm name The National Rubber Shoe Co. has been adopted by what has been known hitherto as The National Shoe Co., of Montreal—composed of A. S. Lavallee and J. I. Chouinard. They handle rubber footwear exclusively.

=Mr. J. E. Spencer, who has been in the employ of the Mechanical Rubber Co., of Cleveland, in various capacities, for a number of years, has resigned to accept a position in the purchasing department of the National Cash Register Co. (Dayton, Ohio).

=The Monarch Rubber Co. (St. Louis) will not sell their "Sunset" and "Prairie" rubbers direct to the retail trade hereafter, but only through their distributing agents, the Giesecke D'Oench-Hays Shoe Co., of St. Louis. The Monarch company still solicit orders for their "Buckskin" boots.

=Selz-Schwab & Co., Chicago jobbers, are offering a line of rubber footwear manufactured for them under their own brands—"Royal Blue" in first quality and "Western Rubber Co." in second quality goods. Exclusive sale of these brands is offered to retailers.

=The Dunlop Tire Co., Limited (Toronto, Ontario), advise THE INDIA RUBBER WORLD that they have made arrangements to supply their tires to fit the new Standard steel channel described and illustrated in our issue of September 1, 1902 (page 377).

=The Montreal Waterproof Clothing Co.—H. Wener, manager—the oldest established house in the waterproof clothing business in Canada, have decided to open a branch at Winnipeg, for the more prompt delivery of goods to their customers in the West.

=The Republic Rubber Co. (Youngstown, Ohio) are reported to be contemplating an increase of capital stock.

=The Gorham Rubber Co. (San Francisco and Seattle) will be represented at the industrial exhibition which opens on March 1 at Osaka, Japan with lines of rubber goods from leading manufacturers in the United States.

=Israel Suchman has withdrawn from the copartnership hitherto between him and Benedict Reis, manufacturers of mackintoshes, as the Neptune Rubber Co., No. 295 Grand street, New York. The business is continued under the same name, at the same address, by Benedict Reis, who assumes the liabilities and assets of the copartnership.

=A jobber on the Pacific coast advises THE INDIA RUBBER WORLD that his territory has been flooded with circulars from jobbing houses further east, announcing a "War in Rubbers" and advising retailers not to place orders without waiting to see how cheaply they can buy from the authors of the circulars. He says that the jobbers in question evidently are endeavoring to take advantage of the fact that jobbers are not restricted this year as to prices, to gain an opening in territory not theirs by right, and he fears demoralization of prices.

=The Woodruff Automobile Co. (Akron) are building especially for the Goodyear Tire and Rubber Co. a touring car on which the latter will make practical tests of their different makes of tires. An automobile for this purpose is also owned by The B. F. Goodrich Co.

=The official report on a test of Milnes-Daimler mail vans between Liverpool and Manchester—fitted with Goodyear solid tires—says: "The Goodyear tires have been a revelation. They have worn splendidly; in fact, the molding on the treads are not yet worn down." The mileage made by each van in the test was 800.

PERSONAL MENTION.

O. C. BARBER, largely interested in the Diamond Rubber Co., was reelected president of the Diamond Match Co., at their annual meeting in Chicago, on February 4. He has held that position since the organization of the company, nearly twenty years ago.

=Dr. W. M. Habirshaw, of the India-rubber and Gutta-percha Insulating Co. (New York), has gone on a trip to Cuba.

=Colonel Sever, of Paris, a former member of the French chamber of deputies, was in New York early in the month, en route for La Paz, Brazil, being a member of the "Mission topographique Hatchett," interested in the development of certain railway concessions through the rubber and mining regions.

=Mr. R. A. Loewenthal, vice president of the U. S. Rubber Reclaiming Works (New York), sailed early in the past month for Europe, to be absent for several weeks on a vacation from business.

OBITUARY.

HENRY HERING died at his home in Hasbrouck Heights, New Jersey, on February 24, of pneumonia, at the age of fifty-six. Mr. Hering was born in Hamburg, Germany, and, coming to the United States when a young man, became interested in the rubber industry. He started at the Lambertville (New Jersey) works of the Goodyear Rubber Co. He was the first superintendent of what is now the Hartford Rubber Works, which position he held for eight years. He was next engaged in an important capacity at the factory of the Boston Woven Hose and Rubber Co. During the last two years he had resided at Hasbrouck Heights with his son, Henry F. Hering, who is connected with the New York Rubber Co. Mr. Hering was always very popular with his associates, on account of his sterling qualities and his willingness to lend a helping hand. He belonged to the Masonic fraternity, the Odd Fellows, and Independent Order of Red Men, and was a member of the

Grand Army of the Republic. Mr. Hering is survived by a widow and the son mentioned above.

JOSEPH DREW THOMAS, who was superintendent of the factory of the Pará Rubber Shoe Co. (South Framingham, Massachusetts), from 1886 to 1892, died at his residence in Liverpool, England, on February 1, in his sixty-seventh year. He was a native of Barnstable, England; sometime assistant superintendent of the Liverpool Rubber Co.; and later filled an important position in the works of the Russian-American India-Rubber Co., in St. Petersburg, after which he took charge of the factory at South Framingham. In 1893 he returned to England. He is survived by a widow and two daughters. He left property in the United States and in England, and by his will Walter Adams, a lawyer of Framingham, is made an executor.

CHARLES FALES PARKER died February 20, at Somerville, Massachusetts, in his seventy-eighth year. He was well known to the rubber shoe trade through his invention of aluminum lasts, and was the proprietor of the Metal Last and Tree Co. (Boston). He is survived by a widow and two daughters. Another daughter was the wife of Major Harry P. Ballard, treasurer of the Boston Rubber Shoe Co. Mr. Parker was an uncle of Homer Sawyer, selling agent of the United States Rubber Co.

THE RUBBER SCRAP MARKET.

A SLIGHT advance is apparent in prices of old rubber boots and shoes—say $\frac{1}{2}$ cent per pound over the quotations of one month ago. There is a report that the Russian government has decreed an export duty on old rubber shoes of $1\frac{1}{2}$ rubles [=76 $\frac{1}{2}$ cents] per pood [=36 pounds], which would be at the rate of 2 $\frac{1}{2}$ cents per pound. The date when this regulation will take effect has not been announced, which lends a new element of uncertainty to the market for foreign scrap. The importance of the projected measure will be seen when it is considered that the great bulk of the rubber scrap imported by the United States is of Russian origin, even if purchased elsewhere, and it is reasonable to suppose that the amount of the Russian levy will have to be paid by the buyer. Hitherto the importation of European scrap, at the prices which the collectors have been willing to accept, has exerted an important influence in keeping down the prices of American scrap. If, now, the Russian product is to be materially increased in cost, the effect must naturally be felt in time in higher prices for domestic stock.

New York quotations—prices paid by consumers:

Old Rubber Boots and Shoes—Domestic.....	7 $\frac{1}{2}$ @ 7 $\frac{1}{2}$
Do —Foreign.....	6 $\frac{1}{2}$ @ 6 $\frac{1}{2}$
Pneumatic Bicycle Tires.....	5 $\frac{1}{2}$
Solid Rubber Wagon and Carriage Tires.....	6 $\frac{1}{2}$
White Trimmed Rubber.....	9 $\frac{1}{2}$ @ 9 $\frac{1}{2}$
Heavy Black Rubber.....	4 $\frac{1}{2}$
Air Brake Hose.....	2 $\frac{1}{2}$ @ 3
Fire and Large Hose.....	2 $\frac{1}{2}$
Garden Hose.....	1 $\frac{1}{2}$
Matting.....	1

THE government of Peru are publishing a series of "Immigrants' Guides" to various regions of that country, with a view to the encouragement of colonization. Of one of these, devoted to the region of the river Pichis, and reached by the Centra railway via the port of Callao, an English translation has been received. It is interesting to note that among the special inducements offered to immigrants is the opportunity for gathering rubber, and the government regulations for the leasing of rubber lands are given in full.

THE RUBBER TRADE AT AKRON.

BY A RESIDENT CORRESPONDENT.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The tire situation is claiming unceasing, vigilant, attention these days, and for more than one reason. Principally because the demand is great and every machine is busy—some of them 24 hours a day, six days in the week—but also because the state of the trade is one which must be watched keenly, are the manufacturers keeping very wideawake. There is a great demand for automobile tires. Makers of solid tires say they are having all they can do. Makers of pneumatic tires are busy as can be in these departments. Of the pneumatics, the detachable tire seems to be taking the lead this season, although for other makes there are plenty of orders. Prices on automobile tires are holding up to a fair level, but the manufacturers are experiencing the same difficulty that bothered them in the bicycle tire industry—an inquiry, approaching a demand, for a cheaper tire than can be made with any sense of satisfaction as to its being serviceable.

Far more especially is this true, however, of the vehicle or carriage tire trade. The outcry for cheap tires which last year became insistent is resulting, it is claimed, in the making and marketing of tires without regard to their wearing qualities, by some manufacturers, at least. Others declare they are holding up prices and quality and that their course will be the more profitable in the long run. Still others take the cue that a man who buys tires at 35 cents a pound gets his money's worth, though he who buys at 50 cents a pound gets better value for his expenditure—in short, makes a very much wiser investment—wiser for all concerned.

There is no great division of opinion among manufacturers as to the price at which a really serviceable tire can be marketed. Quite invariably the figures they name are not higher than 50 cents nor lower than 40 cents per pound. However, it is recalled that in the early days of the solid rubber vehicle tire an article far inferior to that which sells at 50 cents to-day was sold at a much higher figure. And there was no greater profit in the tires, proportionately, either. It is conceded that the time may come when a first class tire can be sold as low as 35 cents the pound or even lower, far cheaper than the prices which must be had for such tires now. The manufacturers are doing all within their power to hasten the day, but meanwhile there is that "psychological point" at which price ends and quality begins which must be ever taken into consideration by the conscientious maker, and which the consumers and the carriage men seem as yet unable to arrive at.

The bicycle tire trade is claiming its own share of attention. While there continues to be a large call for cheap tires, the bulk of this year's business will be not so much in that line as was true of last season. While some of the first class tires are being sold, too, the majority of orders are for the medium grades—quality which runs from \$2.50 to \$3.50 per pair, manufacturers' prices, or thereabout. One large concern expects to make more bicycle tires this season than for three years past. Another will make about the same number as last year which, on the whole, was the best season since 1899-1900, or possibly the year before that.

There is a growing demand for the heavier tires for motor bicycles. These machines are now being put out at prices within reach of many people, \$125 and up, and indications point to a good sale the coming season. Tires for these motor bicycles are of necessity of good quality, and a sufficient demand will open up a first class field—one in which quality is bound to be paramount to price. However, if this demand does not

develop to a considerable extent for another year or two, the majority of manufacturers will not worry about it, as they have plenty of work for the present, without this.

THE season of quiet in the crude rubber market will, if it continues, result in the present prices of rubber products remaining quite generally stationary for some time; that is, there will not be another advance of prices in April, the possibility, or even likelihood, of which was referred to in these columns last month. If quotations on raw material do not change materially, manufacturers say, the present schedules of selling prices will be found the basis of values for the entire year, perhaps. The remark has been made that it is owing more to increases in expenses in other directions than to the rise in crude rubber that manufacturers have advanced their price lists. This, it is declared very generally by them, is incorrect. Except for the rise in crude rubber, their selling prices would not have been changed.

THE present season is one of great activity in the rubber belting trade. The use of such belting is increasing, notwithstanding the claims of leather belting salesmen to the contrary, and the manufacturers say their leather making competitors are the least of their troubles. Speaking of this subject, a leading manufacturer drew a moral from an editorial in THE INDIA RUBBER WORLD for February under the caption, "The Capacity of the Rubber Industry." Said he: "In the manufacture of belting, as in other things, it is having the name and reputation and the goods to sustain these that count. While there is an increasing demand for rubber belting, the same as there is an increasing demand for automobile tires, it does not follow that the field offers an especially inviting prospect for a large investment of new capital—more inviting than another line of activity. There is the same amount of room in almost any other business for the right men and the right goods."

THE demand for golf balls was probably never greater than now. The decision of the professional golfers' association of Great Britain to bar the rubber cored ball from their contests seems rather to have helped than retarded the progress of such balls into popular favor, by advertising them more extensively than they have ever been hitherto. And the amateur golfers, who, by the way, support and in a very great many instances employ the professional golfers, are still using the rubber cored ball and in the leading golf publications ridiculing the stand of the professionals. Evidence of the increased demand for the rubber cored ball is found in the fact that the Haskell Golf Ball Co., who a year ago were far behind in their orders, though making a little more than 100 dozen balls per day, are now still behind, though they are producing, and shipping as fast as they are manufactured, 1000 dozen per day. Thus far the company have been unable to accumulate a surplus stock. Of course such stocks are accumulating, but they are in the hands of the jobbers and dealers, and the beginning of the season, as pertains to the country at large, will find the Haskell company still working overtime on goods for immediate delivery. At least such are the present indications.

Some of the rubber manufacturers are so busy within other departments that they are not pushing their golf ball business. The Diamond Rubber Co., for instance, brought out the "King William" ball last season, and marketed enough of them to be convinced of their success. The rush in the other departments, however, notably on tires, has kept the company from entering the golf ball field this year, and the "King William" and its companions of the Diamond company must lie by awhile.

The Goodyear Tire and Rubber Co. have been getting ready for some time to push their Saunders compressed air ball. The rush of work in other departments has also delayed work with them. It is expected, however, to get the Saunders ball upon the market in quantities sufficient to draw attention to it within a few weeks.

The Whitman and Barnes Manufacturing Co. are making no golf balls this season.

A large number of tennis balls are being manufactured by The India Rubber Co. for an outside concern. The demand is keeping that department of the India company's works busy night and day.

* * *

THE large five story building into which the Diamond Rubber Co. moved their tire departments last spring has been heated throughout the winter, thus far, even in zero weather, by means of the steam first used in the engines and vulcanizers. This economy has been found very successful, giving an even, continuous heat, practically without cost, as the steam would otherwise be wasted.

The shareholders of the Alden Rubber Co., at their annual meeting on February 4, authorized an increase in the capital stock of the company from \$110,000 to \$220,000, and the capacity of the plant is to be practically doubled. Plans for additions are now being prepared. The company will make a general extension of their present lines. Several changes were made in the personnel of the company, E. L. Toy, vice president, and A. J. Commins, secretary, retiring from active participation in the company, save that Mr. Toy continues to be a director. W. A. Johnston, president of the American National Bank of Barberton, and treasurer of the Pure Gum Specialty Co., was elected to the directorate, and became treasurer of the company. Wilmer Dunbar, heretofore holding an important position with the company, was elected vice president and general manager. The other officers are: I. C. Alden, president; Mark Hayne (formerly treasurer), secretary; George C. Kohler, general counsel.

The Lilly Rubber Manufacturing Co. (Barberton, Ohio), was incorporated under Ohio laws, on February 13, with an authorized capitalization of \$10,000. This is the company promoted by Charles Ammerman, president of the First National Bank of Barberton, and referred to already in this correspondence. W. C. Lilly, formerly with The B. F. Goodrich Co., is the practical man of the concern, which already has begun manufacturing dipped and molded goods. The officers are: Charles Ammerman, president; E. E. Beam (Ashtabula, O.), vice president; H. C. Benner, secretary and treasurer; W. C. Lilly, general manager. The officers, and M. J. Flattery, of Pittsburgh, Pa., constitute the board of directors.

The Buckeye Rubber Co. have lately taken on the manufacture of rubber horseshoe pads, and are very busy in the new department as well as in their tire departments. S. S. Miller, the manager of the company, states that the use of rubber horseshoes is rapidly increasing, and that the demand this year will far surpass that of any previous season. In their tire departments the Buckeye company booked twice as many orders in January as during the same month last year. The factory is in operation day and night.

Peter Kiefer filed suit against The Diamond Rubber Co. on February 10, asking damages in the sum of \$1995 upon the alleged ground that he was blacklisted by the Diamond company for suspected sympathy with the union labor movement last October, and thereby prevented from securing other employment. In his petition Kiefer says he was for nearly seven years an employé of the company and, becoming an expert stock-

cutter, was able to earn \$3 and \$3.50 per day. He avers that he was discharged without reason, and that when he asked for employment at other factories in Akron, persons to whom he applied referred to a list they had and told him there was nothing for him, though at the time the different companies were advertising for men. The case is almost identical with that of Schaeffer v. the New York, Chicago and St. Louis Railroad Co., decided by the supreme court of Ohio in 1902, in which the judgment was in favor of the company, it being held that an employer could not be required to give a reason for discharging or refusing to employ any person. In this instance Schaeffer had been implicated in a strike. Attorneys for The Diamond Rubber Co. will file a demurrer to Kiefer's petition upon the precedent established in the case cited.

The labor situation remains quiet in the rubber industry. The union organized last June is just about holding its own now, but it is expected that the national convention of the Amalgamated Rubber Workers' Union, to be held here in June, will create some enthusiasm among the local rubber workers. The other local unions in Akron are expected to assist in entertaining the visiting rubber workers. It is thought that about fifty delegates will attend the convention.

W. B. Tuttle and W. R. Harris, of the Combination Tire and Supply Co., were in Albany, N. Y., recently, to obtain the dissolution of their company, they having a New York charter. The internal affairs of the company rendered this step advisable. Directly this is accomplished a new company will be incorporated in Ohio, with a capital probably of \$25,000, to be known as the Harris Tire Co.

The Diamond Rubber Co. are increasing their facilities for manufacturing hard rubber goods, and will give that department more attention this spring than ever before. Battery jars, tubing, and rods are being produced in considerable quantities. The company have had difficulty in obtaining help.

Among the Akron men attending the Chicago automobile show in February, in connection with exhibits of their companies, were F. H. Mason and H. E. Raymond of The B. F. Goodrich Co.; H. J. Dingman of the Goodyear Tire and Rubber Co.; W. B. Hardy and Theodore Weigle of the Diamond Rubber Co.; H. C. Firestone of the Firestone Tire and Rubber Co.

The undertaking of the Richland and Mahoning Railroad Co. to build a new road from Akron to Mogadore, to connect with the Wheeling and Lake Erie railroad there (backed by the Gould people, as newspaper reports declare), will give the Goodyear Tire and Rubber Co. improved shipping facilities. The proposed road will pass directly back of their factory, and will be an extension of the Northern Ohio railroad, giving the company direct access to two important lines.

* * *

THE Canton Hard Rubber Co. (Canton, Ohio) are about to extend their line of production and engage in the manufacture of hard rubber goods in general. The concern is owned by the interests which owned the Canton Pole and Shaft Co., which recently consolidated with the Pioneer Pole and Shaft Co., embracing the principal factories of the kind in the United States. The owners now have more time and capital to devote to their rubber factory, and while continuing the manufacture of hard rubber harness mountings, as heretofore, will branch out as rapidly as they find their business warrants. The company's employes are chiefly from the Crown Point (Akron) factories of the American Hard Rubber Co.

THE INDIA RUBBER WORLD's correspondent found the Canton Rubber Co. (Canton, Ohio) well pleased with the business they are doing, and contemplating additions to their present lines of molded and dipped goods.

REVIEW OF THE CRUDE RUBBER MARKET.

DURING February the market for Pará sorts advanced, with the result of regaining in large part the decline experienced in January, though the same is not true of Africans and Centrals, some grades of which are quoted at this date lower than one month ago. The market continues in a state of uncertainty, with prices still below what the statistical situation might be thought to justify, and while deliveries in the aggregate are considerable, consumers have not been buying with the freedom that characterized the market during the closing months of 1902. This is no indication of inactivity in the industry, however. The weather has been unexceptionally favorable for the sale of rubber footwear, and the factories in that branch not only have been busier than for many winters, but they still have large orders ahead. Every other branch of rubber manufacture is similarly active. New factories have been getting to work, and additions made to old ones, at a rate which has taxed the capacity of makers of rubber machinery, with the result that second hand machinery has been in such demand as practically to exhaust the supply. There are practically no factories standing closed. But manufacturers are not buying more rubber than they are compelled to.

The market has been unsettled slightly by the reported embarrassment of a Liverpool firm of rubber merchants. Their trouble, however, has not been due to an oversupply of rubber, with a falling market, as was true of a notable failure in New York last year, but to selling rubber which they did not hold, and an advance in the market beyond their selling prices.

The disturbances in the Acre territory are to be settled by negotiations between Bolivia and Brazil, which will remove an obstacle to gathering rubber in that important district, but the effect cannot be an early increase in supplies. Not only has navigation been checked on the Acre, but the rubber gatherers were under arms at a time when, otherwise, they would have been gathering rubber.

There have been reported large arrivals of rubber at Manáos, however, from other upriver districts, and receipts at Pará during February were in excess of those for the same month last year—all of which gives the hope that, through some chance, the total output for the crop season may not be so much shorter than last year as the returns for several months indicated. The Pará receipts from July 1 to the following February 28 (eight months) in each of two years past, and to February 26 in the present year, have been as follows:

	1900-01.	1901-02.	1902-03.
Rubber.....	15,863	18,839	17,451
Caucho.....	1,167	1,696	1,524
Total.....	17,030	20,535	18,975

These figures include 3605 tons of rubber to February 26, against 3075 for the whole of February last year, and 600 tons of Caucho against 315 tons last year.

New York quotations on February 27 were:

PARÁ.	Caucho (Peruvian) ball 65	AFRICAN.
Islands, fine, new....	@85	Sierra Leone, 1st quality...@78
Islands, fine, old....	@91	Massai, red.....@78
Upriver, fine, new....	@90	Benguella.....@65
Upriver, fine, old....	@95	Cameroon ball.....@61
Islands, coarse, new....	@53	Gaboon flake.....@36
Islands, coarse, old....	@	Gaboon lump.....@38
Upriver, coarse, new....	@73	Niger paste.....@21
Upriver, coarse, old....	@	Accra flake.....@21
Caucho (Peruvian) sheet 53	@54	

Accra buttons.....	58 @59
Accra strips.....	59 @60
Lopori ball, prime....	78 @79
Lopori strip, do.....	76 @77
Ikelemba.....	80 @81
Madagascar, pinky....	77 @78

EAST INDIAN.

Assam.....	
Borneo.....	38 @52

CENTRALS.

Esmeralda, sausage....	66 @67
Guayaquil, strip.....	59 @60
Nicaragua, scrap....	65 @66
Panama, slab.....	54 @55
Mexican, scrap.....	65 @66

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine.....	5650	Upriver, fine.....	6300
Islands, coarse.....	2850	Upriver, coarse.....	4800
Exchange, 11½d.			

Last Manáos advices:

Upriver, fine.....	6200	Upriver, coarse.....	4800
Exchange, 11½d.			

Statistics of Para Rubber (Excluding Caucho).

	NEW YORK.		Total	Total	Total
	Fine and Medium.	Coarse.	1903.	1902.	1901.
Stocks, January 1.....	67	5 = 72	1130	658	
Arrivals, January.....	1071	553 = 1624	1330	1094	
Aggregating.....	1138	558 = 1696	2469	1752	
Deliveries, January.....	915	528 = 1443	1130	1100	
Stocks, January 31....	223	30 = 253	1339	652	

	PARÁ.			ENGLAND.		
	1903.	1902.	1901.	1903.	1902.	1901.
Stocks, Jan. 1.....	365	150	660	885	1290	780
Arrivals, January....	2500	3825	2445	1190	1156	1195
Aggregating.....	2805	3975	3105	2075	2455	1975
Deliveries, January...	2710	3465	2390	1025	1225	900
Stocks, Jan. 31....	155	510	715	1050	1230	1075

	1903.	1902.	1901.
World's supply, January 31.....	2783	5329	3676
Pará receipts, July 1 to January 31.....	13,846	16,079	13,735
Pará receipts of Caucho, same dates.....	924	1381	
Afloat from Pará to United States, Jan. 31..	740	930	374
Afloat from Pará to Europe, January 31.....	585	1320	860

Para.

KANTHACK & Co. report [February 4]:—

The tone of the market having lately given way to depression, a pronounced relapse has taken place, caused as much by the downward movement at the consuming centers as by the increasing receipts at Manáos. As these receipts, however, are not likely to go on increasing to the extent of last crop, if for no other reason than the shrinkage from the Acre district, the present state is regarded as a passing phase, to be followed by a revival of demand and an improvement in values. The Bolivian Acre affair is assuming a rather gloomy and perilous aspect, since the decision of the Brazilian government to despatch two important expeditions, ostensibly to protect their own frontiers and subjects.

RUBBER EXPORTS FOR SIX YEARS (IN POUNDS).

YEAR.	United States.	Europe.	Total.	Stocks Dec. 31.
1897.....	25,612,369	24,057,665	49,670,034	2,078,372
1898.....	21,671,801	26,628,790	48,300,591	2,945,346
1899.....	30,506,123	25,466,851	56,062,977	1,086,343
1900.....	27,413,469	31,556,635	58,970,104	2,052,481
1901.....	34,283,685	32,494,745	66,778,430	2,894,639
1902.....	30,555,463	32,385,380	62,940,843	2,407,423

Rubber Receipts at Manaos.

DURING January and for the first seven months of the crop season (by courtesy of Messrs. Witt & Co.):

From—	JANUARY.			JULY-JANUARY.		
	1903.	1902.	1901.	1903.	1902.	1901.
Rio Purús.....tons	720	1556	738	2635	3895	2450
Rio Madeira.....	178	250	261	1478	1860	1709
Rio Jurua.....	1246	747	435	2015	2340	1335
Rio Javary—Iquitos.....	257	87	177	1252	979	856
Rio Solimões.....	154	227	195	1076	1274	794
Rio Negro.....	126	92	99	325	187	197
Total.....	2661	2959	1895	8781	10528	7341
Caucho.....	596	517	266	1196	1613	807
Total.....	3257	3476	2161	9977	12141	8148

The table indicates a shortage of 2164 tons in receipts at Manaos for seven months compared with the same period last season. A correspondent up the Amazon writes, however, to THE INDIA RUBBER WORLD: "Should the war clouds blow away, it seems probable that the crop will be better than last year's; the difference will not be great, anyway." Reference is made to the troubles on the Acre river, which, it now appears, will reach a peaceable settlement.

London.

EDWARD TILL & Co., February 2, report stocks:

LONDON		1903.	1902.	1901.
		tons		
{	Pará sorts.....	—	—	—
	Borneo.....	24	134	193
	Assam and Rangoon.....	2	54	20
	Other sorts.....	192	414	730
Total.....		218	602	943
{	Pará.....	1045	1241	1082
	Other sorts.....	658	831	1104
Total, United Kingdom.....		1921	2674	3129
Total January 1.....		1582	2794	2901
Total, December 1.....		2083	2525	3061
Total, November 1.....		2337	2602	3040
Total, October 1.....		2464	2802	2846

PRICES PAID DURING JANUARY.

	1903.	1902.	1901.
Pará fine, hard.....	3/8 @ 3/10 1/2	3/2 1/2 @ 3/6 1/2	3/7 @ 3/10 1/2
Do soft.....	3/7 @ 3/9	3/7 @ 3/9 1/2	3/7 @ 3/9 1/2
Negroheads, Islands.....	2/5 @ 2/6	2/- @ 2/1 1/2	2/1 1/2 @ 2/2
Do scrappy.....	2/3 @ 3/0 1/2	2/7 1/4 @ 2/8 3/4	2/9 @ 2/9 1/2
Bolivian.....	No sales.	No sales.	No sales.

FEBRUARY 13.—The market has been rather disorganized this week, owing to a certain rubber importing house in Liverpool being in difficulties, but at the close a rather better tone prevails. There is little change in prices. A moderate business has been done in Pará, comprising fine hard, spot, at 3s. 6 1/2 d., March-April delivery, 3s. 6 1/4 d., April-May, 3s. 7 d., and May-June 3s. 7 1/4 d @ 3s. 7 1/2 d. Fine soft cure sold spot and near at 3s. 6 d. @ 3s. 5 1/2 d. Negroheads lower; sales Manaos at 2s. 10 1/2 d., and Cametés at 2s. 3 d. Peruvian fine, 3s. 6 1/4 d.; scrappy, 2s. 9 d @ 2s. 10 1/2 d.; ball, 2s. 9 1/2 d. @ 2s. 9 1/4 d.

Medium sorts scarce and in good demand; at auction to-day sales were made at generally steady prices. Madagascar: Mixed pinky and Majunga, 2s. 8 d. @ 2s. 9 1/4 d. Majunga and dark coated, 2s. 4 d. Mozambique: Stickless sausage, 3s. 2 1/2 d.; fair red ball, 3s. 1 d.; Beira ball, 3s. @ 3s. 1 d.; Lamu ball, 2s. 8 d. Uganda: Clean ball, 2s. 0 1/2 d. Central American: Weak scrap, 2s. @ 2s. 2 1/2 d.; slab, sheet, and strip, 1s. 7 d @ 1s. 10 d.

Balata—120 packages offered and bought in, the value of sheet being 2s. 5 d., and block 1s. 11 1/2 d. On January 23 at auction 161 packages offered and 6 sold—fair unsorted sheet at 2s. 4 d.; inferior ditto at 1s. 1 d.; inferior perished at 1s. 3 d. Venezuelan block was all bought in.

Liverpool.

WILLIAM WRIGHT & Co. report [February 2]:

Fine Pará.—During the first half of the month the market was strong and active, and prices advanced another 2d. per pound, since

which time there has been a slight reaction, and the market closes quiet at 3s. 8 d. for Upriver, and 3s. 7 d. for Islands. This decline was anticipated in our last, but it is only of a temporary character. Receipts are extremely small, and the crop will undoubtedly be short. Stocks in America are practically nil, and at the present rate of demand, we anticipate, after the heavy receipts are over, a further decided rise in prices above present rates. Manufacturers must bear in mind the present situation does not arise from "bull" or "bear" manipulation, but is due to the law of supply and demand, and we think they would act wisely in taking advantage of any temporary set back in prices. We repeat again that, taking prices paid for good medium grades, fine Pará is still the cheapest rubber.

EDM. SCHLÜTER & Co. report Liverpool stocks [January 31]:

Pará—First hands:		Pará—Second hands:	
Fine.....	tons 451	Fine.....	tons 356
Medium.....	49	Medium.....	22
Negroheads.....	142	Negroheads.....	25
Total.....	642	Total.....	403
Peruvian.....	84 tons.	Manicoba.....	936 pkgs.
Mollendo.....	61 pkgs.	Ceará.....	321 "
Mangabeira.....	13 "	Assare.....	" "
Pernambuco.....	133 "	Africans.....	432 tons.

Bordeaux.

PRICES [IN FRANCS PER KILOGRAM].

Sierra Leone sorts:	Cassamance A.P.A.....	7 50 @ 7 70
Niggers, red 1.....	Cassamance A.M.B.....	5 @ 6.
Niggers, white 1.....	Mayumba.....	4 35 @ 5 50
Niggers, white 11.....	Madagascar:	
Twists.....	Pinky.....	7 50 @ 8.
Grand Bassam:	Black.....	6 50 @ 7.
Lumps.....	Niggers.....	4 50 @ 7.
Cakes.....	Java.....	7 25
Gold Coast lumps.....	New Caledonia.....	7 75
February 9, 1903.	R. HENRY.	

Hamburg.

PRICES [IN MARKS PER KILOGRAM].

Mozambique ball:	Mozambique spindles.....	7 35 @ 7 40
"Donde," finest.....	Mass. niggers.....	7 18 @ 7 25
"Mahenge," finest.....	Adeli ball.....	7 45 @ 7 55
"Nyassa," fine.....	Gambia ball.....	6 @ 6 10
Pinky, good.....	Bissao ball.....	5 80 @ 5 90
White, good.....	Guayaquil scrap.....	6 75 @ 6 80
Beira, fine.....	Pará fine.....	8 20 @ 8 25
Good unripe.....	Manaos negrohead.....	6 60 @ 6 65
Hamburg, February 14, 1903.		

Antwerp.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The Antwerp rubber market showed much firmness during January. At the sale of January 27 617 tons found buyers, out of 623 tons offered. Competition was brisk and prices were on an average 50 centimes per kilogram higher than the estimations—or an advance to 6 or 7 per cent. The principal lots sold were:

	Valuation.	Sold.
80 tons Upper Congo (mixed with Loanda).....	francs 7 95	8 50
36 " Aruwimi.....	7 75	8 35
27 " Aruwimi.....	7 50	8 05
51 " Mongalla strips.....	7 75	8 27 1/2
22 " Mongalla strips.....	7 50	8 27 1/2
35 " Uelé strips.....	7 65	8 50
14 " Equateur.....	8 25	8 62 1/2
11 " Upper Congo small strips.....	7 85	8 12 1/2

At the small Friday sale of February 13, when 48 tons were sold out of 51 tons offered, some weakness was shown. Prices were irregular. In some instances 2 and 3 per cent. below valuations—i.e., on the high values of the January sale.

The next monthly sale, on February 20, will be small, as only about 130 tons will be offered, including the following:

	Valuation.
35 tons Aruwimi.....	francs 8 05
12 " Aruwimi (mixed with Upper Congo).....	8 40
30 " Mongalla, small strips.....	8 30
13 " Yengu (Upper Congo) small pieces.....	8 75

After the January sale stocks amounted to 106 tons, to which should be added 352 tons since arrived by the *Philippeville*.

C. SCHMID & CO.

Antwerp, February 12, 1903.

RUBBER ARRIVALS AT ANTWERP.

JAN. 29.—By the *Philippeville*, from the Congo:

Bunge & Co. (Société Générale Africaine) kilos	230,190	
Do (Société Anversoise)	3,906	
Do (Chemins de fer des Grand Lacs)	4,313	
Do (Comité Spécial Katanga)	2,133	
Do (Sultanats du Haut Ubangi)	717	
Do (Société "La Kotto")	726	
Comptoir Commercial Congolais	17,500	
Société Coloniale Anversoise	54,000	
Do (Belge du Haut Congo)	1,500	
Th. De Bruyne	10,000	
Charles Dethier	6,000	
Société Agricole & Commerciale de l'Alima	2,050	
Comptoir des Produits Coloniaux		
Do (Cie. de l'Ekelu Sangha)	14,000	
Do (Cie. de la Kadeia Sangha)	1,400	
W. Mallinckrodt & Co.		
(Cie. des Caoutchoucs & Produits de La Lobay)	3,500	352,635

IMPORTS FROM PARA AT NEW YORK.

[The Figures Indicate Weights in Pounds.]

February 2.—By the steamer *Bernard*, from Pará:

IMPORTERS.	Fine.	Medium.	Coarse.	Cauch.	Total
New York Commercial Co.	58,400	10,500	42,800		111,700
United States Rubber Co.	3,000		45,500	49,500	98,000
A. T. Morse & Co.	1,100		67,200		68,300
William Wright & Co.	6,700	800	11,000		19,400
L. Hagenaers & Co.	9,800	1,700	7,000		18,500
Kramisch & Co.			11,800		11,800
H. A. Gould Co.	5,000	300	3,200		8,500
Poel & Arnold.			7,200		7,200
G. Amsinck & Co.			400	1,600	2,000
Total.	84,000	13,300	197,000	51,100	345,400

PARA RUBBER VIA EUROPE.

POUNDS.	
JAN. 24.—By the <i>Celtic</i> =Liverpool:	
Poel & Arnold (Fine)	61,000
William Wright & Co. (Fine)	18,000
George A. Alden & Co. (Fine)	5,500
JAN. 26.—By the <i>Elruria</i> =Liverpool:	
Poel & Arnold (Fine)	22,000
FEB. 2.—By the <i>Bordeaux</i> =Havre:	
A. T. Morse & Co. (Fine)	21,000
FEB. 3.—By the <i>Segurana</i> =Mollendo:	
J. M. Parr's Sons (Fine)	2,000
FEB. 11.—By the <i>Ibernia</i> =Liverpool:	
Poel & Arnold (Fine)	55,000
Poel & Arnold (Coarse)	21,000
FEB. 14.—By the <i>Germania</i> =Liverpool:	
Poel & Arnold (Coarse)	11,000
Edmund Reeks & Co. (Fine)	5,000
Edmund Reeks & Co. (Coarse)	2,500

OTHER ARRIVALS AT NEW YORK

POUNDS.	
JAN. 24.—By the <i>Alamo</i> =Mobile:	
A. T. Morse & Co.	2,500
Manhattan Rubber Mfg. Co.	2,200
JAN. 26.—By the <i>Vigilante</i> =Mexico:	
E. Steiger & Co.	2,000
H. Marquardt & Co.	2,000
Thebaud Brothers	1,300
D. N. Tibbals & Co.	1,100
D. N. Carrington & Co.	1,000
American Trading Co.	500
Samuels Brothers	300
Harburger & Stack	300
L. N. Chemedlin & Co.	300
Graham, Hinkley & Co.	300
JAN. 27.—By the <i>Finance</i> =Colon:	
Hirzel, Feltman & Co.	15,000
Mecke & Co.	9,700
Isaac Brandon & Bros.	5,700
A. Santos & Co.	3,900
Roldan & Van Sickle	2,800
Dumarest & Co.	2,700
American Trading Co.	1,700
Eggers & Heinlein	1,300
Piza, Nephews & Co.	900

February 9.—By the steamer *Hildebrand*, from Manáos and Pará:

Poel & Arnold	220,400	73,300	103,000	7,900	413,600
New York Commercial Co.	187,100	46,800	106,200		340,100
A. T. Morse & Co.	83,300	13,800	84,700		181,800
William Wright & Co.	94,800	14,400	55,000	3,000	167,200
Edmund Reeks & Co.	14,100	4,700	3,700	81,700	104,200
United States Rubber Co.	15,200	2,000	49,800	20,900	87,900
G. Amsinck & Co.	12,100	3,000	1,200	26,100	42,400
L. Hagenaers & Co.	8,400		14,600		23,000
Lawrence Johnson & Co.				13,900	13,900
H. A. Gould Co.	5,400	1,400	2,100		8,900
Hagemeyer & Brunn	2,800		3,100		5,900

Total

February 17.—By the steamer *Grangese*, from Manáos and Pará:

A. T. Morse & Co.	178,500	49,400	159,200	17,600	404,700
Poel & Arnold	57,100	28,200	61,100	24,300	170,700
New York Commercial Co.	96,600	28,600	27,000		152,200
William Wright & Co.	30,900	5,000	26,900	6,000	68,800
Edmund Reeks & Co.	45,400	12,400	10,200		68,000
United States Rubber Co.			45,500		45,500
L. Hagenaers & Co.	13,300		11,000		24,300
H. A. Gould Co.	6,500	300	2,500		9,300

Total

February 24.—By the steamer *Clearense*, from Manáos and Pará:

A. T. Morse & Co.	124,500	50,100	126,500	41,800	345,900
Poel & Arnold	159,600	53,200	134,700	10,100	357,600
New York Commercial Co.	105,000	36,700	42,800	4,500	189,000
Edmund Reeks & Co.	56,500	12,700	22,500		91,700
United States Rubber Co.	9,000		45,500	25,800	80,300
Hagemeyer & Brunn				31,300	31,300
G. Amsinck & Co.	12,100	4,000	8,500	2,400	27,000
L. Hagenaers & Co.	14,700		8,500		23,200
Robinson & Tallman	8,100	1,000	1,700		10,800
H. A. Gould Co.	6,400	1,000	1,000		8,400
William Wright & Co.	3,200	1,400	500	2,400	7,500

Total

[NOTE.—The *Dominic* is due at New York on March 6, with 660 tons of Rubber and 40 tons Cauch.]

CENTRALS—Continued.

G. Amsinck & Co.	500	
W. R. Grace & Co.	500	
D. A. De Lima & Co.	400	
F. Lopez	200	45,200
JAN. 27.—By the <i>Valencia</i> =Greytown:		
E. B. Strout	6,000	
A. D. Straus & Co.	4,000	
G. Amsinck & Co.	4,000	
Roldan & Van Sickle	4,500	
Lawrence Johnson & Co.	500	19,000
JAN. 30.—By the <i>El Monte</i> =New Orleans:		
A. T. Morse & Co.	12,000	
Hamper & Co.	2,000	
Eggers & Heinlein	2,000	
A. S. Lascas & Co.	200	16,200
JAN. 31.—By the <i>Monte</i> =Mexico:		
E. Steiger & Co.	1,000	
L. N. Chemedlin & Co.	300	
Graham, Hinkley & Co.	200	1,500
FEB. 2.—By the <i>El Cid</i> =Galveston:		
W. Loiza & Co.	4,000	
A. T. Morse & Co.	1,000	5,000
FEB. 3.—By the <i>Altai</i> =Savannah, etc.:		
Kunhardt & Co.	3,000	
Jimenez & Escobar	700	
J. H. Recknagel & Co.	500	4,200
FEB. 3.—By the <i>Segurana</i> =Colon:		
Hirzel, Feltman & Co.	14,500	
G. Amsinck & Co.	5,400	
American Trading Co.	4,900	
Lawrence Johnson & Co.	4,200	
Isaac Brandon & Bros.	2,900	
Andreas & Co.	2,500	
Fidanque Bros. & Co.	1,500	
Silva Bussental & Co.	2,800	
Kunhardt & Co.	2,400	
D. A. De Lima & Co.	1,200	
E. Scheitlin & Co.	1,000	
Harburger & Stack	700	
Jimenez & Escobar	900	45,100
FEB. 9.—By the <i>Egyptian Prince</i> =Bahia:		
Booth & Co.	7,500	
J. H. Rossbach & Bros.	5,100	12,600
FEB. 10.—By the <i>City of Washington</i> =Colon:		
Hirzel, Feltman & Co.	11,000	
L. N. Chemedlin & Co.	5,400	
G. Amsinck & Co.	5,400	
Isaac Brandon & Bros.	2,000	
D. A. De Lima & Co.	2,300	

CENTRALS—Continued.

American Trading Co.	2,100	
Joseph Hecht	600	28,400
FEB. 10.—By the <i>Excelsior</i> =New Orleans:		
A. T. Morse & Co.	5,000	
Manhattan Rubber Mfg. Co.	3,500	8,500
FEB. 11.—By the <i>Allegheny</i> =Greytown:		
E. B. Strout	11,000	
A. D. Straus & Co.	2,000	
G. Amsinck & Co.	2,200	
Andreas & Co.	1,000	
Roldan & Van Sickle	600	16,800
FEB. 13.—By the <i>Camocus</i> =Bahia:		
J. H. Rossbach & Bros.	7,500	
FEB. 16.—By the <i>Proetus</i> =New Orleans:		
A. T. Morse & Co.	14,000	
Manhattan Rubber Mfg. Co.	8,500	
A. N. Rotholz	2,000	
Eggers & Heinlein	4,000	28,500
FEB. 16.—By the <i>Esperanza</i> =Mexico:		
E. Steiger & Co.	5,500	
For Hamburg	2,500	
Samuels Brothers	1,500	
F. Probst & Co.	1,500	
H. Marquardt & Co.	1,000	
Thebaud Bros.	300	
Isaac Kubie & Co.	200	12,500
FEB. 17.—By the <i>Alliance</i> =Colon:		
Hirzel, Feltman & Co.	3,400	
L. N. Chemedlin & Co.	3,100	
Lawrence Johnson & Co.	4,000	
Fidanque Bros. & Co.	2,500	
A. Santos & Co.	2,600	
Dumarest & Co.	1,700	
Piza, Nephews & Co.	1,700	
Ascensio & Cosio	2,100	
Eggers & Heinlein	1,000	
G. Amsinck & Co.	1,000	
Frame & Co.	800	
Kunhardt & Co.	800	
E. B. Strout	600	
A. N. Rotholz	800	
Roldan & Van Sickle	300	
R. G. Barthold	200	
Jimenez & Escobar	300	26,000
FEB. 19.—By the <i>Byron</i> =Bahia:		
J. H. Rossbach & Bros.	15,000	
FEB. 19.—By the <i>El Rio</i> =New Orleans:		
G. Amsinck & Co.	2,000	
Eggers & Heinlein	800	2,800

AFRICANS.

	POUNDS.
JAN. 34.—By the Celtic=Liverpool:	
A. T. Morse & Co.	45,000
William Wright & Co.	7,000 52,000
JAN. 26.—By the Struria=Liverpool:	
Poel & Arnold	47,000
H. A. Gould Co.	16,000
Otto Meyer	11,000
Robinson & Tallman	13,000 86,000
JAN. 27.—By the Kroonland=Antwerp:	
Joseph Cantor	14,000
JAN. 27.—By the Minneapolis=London:	
H. A. Gould Co.	7,000
JAN. 29.—By the Bluecher=Hamburg:	
A. T. Morse & Co.	72,000
George A. Alden & Co.	31,000
Poel & Arnold	4,500 107,000
JAN. 29.—By the Philadelphia=Liverpool:	
Poel & Arnold	44,800
JAN. 29.—By the Teutonic=Liverpool:	
Poel & Arnold	22,500
George A. Alden & Co.	17,000
A. T. Morse & Co.	13,000
H. A. Gould Co.	8,000 60,500
FEB. 4.—By the Saxonia=Liverpool:	
Poel & Arnold	28,000
George A. Alden & Co.	29,000
Henry A. Gould Co.	22,500
A. T. Morse & Co.	11,000
Joseph Cantor	8,500 99,000
FEB. 5.—By the Oceanic=Liverpool:	
Poel & Arnold	15,000
Otto Meyer	12,000
George A. Alden & Co.	11,000
Morgan & Wright	23,000 61,000
FEB. 11.—By the Finland=Antwerp:	
Poel & Arnold	45,000
Robinson & Tallman	5,500
A. T. Morse & Co.	4,000 54,500
FEB. 11.—By the Canadian=Liverpool:	
Poel & Arnold	66,000
George A. Alden & Co.	45,000 101,000
FEB. 11.—By the Isernia=Liverpool:	
Poel & Arnold	15,000
A. T. Morse & Co.	11,800
George A. Alden & Co.	3,500 30,300

AFRICANS—Continued.

FEB. 14.—By the Germanic=Liverpool:	
A. T. Morse & Co.	35,000
Poel & Arnold	28,000 63,000
FEB. 18.—By the Bulgaria=Hamburg:	
A. T. Morse & Co.	17,000
Poel & Arnold	18,000
George A. Alden & Co.	11,000
Otto Meyer	4,000
William Wright & Co.	4,500 52,500
FEB. 19.—By the Vaderland=Amsterd.	
George A. Alden & Co.	540,000
Poel & Arnold	26,000
For Boston	170,000 776,000
FEB. 21.—By the Cedric=Liverpool:	
Poel & Arnold	15,000
A. T. Morse Co.	10,000
Earle Brothers	3,500 28,500
EAST INDIAN.	
JAN. 29.—By the Bluecher=Hamburg:	
Poel & Arnold	22,000
FEB. 2.—By the St. Paul=London:	
Poel & Arnold	15,000
FEB. 13.—By the Mesaba=London:	
Poel & Arnold	16,000
PONTIANAK.	
FEB. 2.—By the Kennebec=Singapore:	
Poel & Arnold	225,000
George A. Alden & Co.	38,000
William Wright & Co.	150,000
Robert Brann & Co.	165,000 578,000
FEB. 5.—By the Border Knight=Singapore:	
William Wright & Co.	245,000
George A. Alden & Co.	125,000
J. H. Recknagel & Co.	90,000 460,000
GUTTA-PERCHA AND BALATA.	
JAN. 29.—By the Bluecher=Hamburg:	
E. Oppenheim	6,000
FEB. 2.—By the Kennebec=Singapore:	
Poel & Arnold	4,500
William Wright & Co.	13,000
Robert Brann & Co.	8,000 25,500
FEB. 16.—By the Bulgaria=Hamburg:	
E. Oppenheim	7,000
Earle Brothers	1,500 8,500

GUTTA PERCHA AND BALATA.—Continued

FEB. 20.—By the Bovic=Liverpool:	
Royal Niger Co.	11,500
BALATA.	
JAN. 29.—By the Prins Maurits=Surinam:	
G. Amsinek & Co.	1,000
FEB. 2.—By the Minchaka=London:	
Earle Brothers	2,500
FEB. 9.—By the Maracas=Trinidad:	
Thebaud Brothers	1,500

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—JANUARY.

Imports:	POUNDS.	VALUE.
India-rubber	5,782,136	\$3,330,122
Gutta-percha	26,979	9,805
Gutta-jelutong (Poutianak) ..	322,746	7,212
Total	6,131,861	\$3,355,938
Exports:		
India-rubber	33,161	\$25,976
Re-claimed rubber	43,972	5,842
Rubber Scrap Imported	1,233,155	\$3,660

BOSTON ARRIVALS.

	POUNDS
JAN. 2.—By the Armenian=Liverpool:	
Poel & Arnold—Coarse Pará.	15,028
JAN. 7.—By the Iowa=Liverpool:	
George A. Alden & Co.—African	7,356
JAN. 15.—By the Michigan=Liverpool:	
George A. Alden & Co.—African	11,109
JAN. 16.—By the Michigan=Liverpool:	
Poel & Arnold—Caucho	6,333
JAN. 21.—By the Armenian=Hamburg:	
Otto Meyer—African	9,815
JAN. 23.—By the Sachem=Liverpool:	
Poel & Arnold—African	1,433
Total Imports	51,106
[Value, \$30,541.]	
GUTTA-PERCHA.	
JAN. 23.—By the Sachem=Liverpool:	
George A. Alden & Co.	5,630

OFFICIAL STATISTICS OF CRUDE INDIA-RUBBER (IN POUNDS).

UNITED STATES.				GREAT BRITAIN.			
MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.	MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
December, 1902	4,858,874	191,033	4,664,841	December, 1902	4,048,352	2,827,664	1,220,688
January-November	46,007,023	3,070,587	42,936,441	January-November	42,921,618	29,818,448	13,073,200
Twelve months, 1902	50,865,902	3,264,620	47,601,282	Twelve months, 1902	46,970,000	32,676,112	14,293,888
Twelve months, 1901	55,142,810	3,725,558	51,417,252	Twelve months, 1901	52,245,083	32,004,704	19,340,384
Twelve months, 1900	49,337,183	3,849,276	45,487,907	Twelve months, 1900	57,488,032	32,885,838	24,602,144
GERMANY.				ITALY.			
MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.	MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
December, 1902	2,973,520	1,075,800	1,897,720	December, 1902			
January-November	30,089,840	12,643,400	17,446,440	January-November	1,409,540	107,360	1,302,180
Twelve months, 1902	33,063,360	13,719,200	19,344,160	Twelve months, 1902			
Twelve months, 1901	28,649,280	11,027,500	17,621,780	Twelve months, 1901			
Twelve months, 1900	29,527,080	10,493,340	19,033,740	Twelve months, 1900			
FRANCE.*				AUSTRIA-HUNGARY.			
MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.	MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
December, 1902	1,244,980	243,540	1,001,440	December, 1902	237,160	3,080	234,080
January-November	14,144,460	28,316,000	45,828,460	January-November	2,396,900	12,540	2,384,360
Twelve months, 1902	15,389,440	8,559,540	6,829,900	Twelve months, 1902	2,634,060	15,620	2,618,440
Twelve months, 1901	16,141,180	9,550,860	6,590,320	Twelve months, 1901	2,643,740	25,080	2,618,660
Twelve months, 1900	16,273,130	9,984,700	6,288,430	Twelve months, 1900	2,504,920		

NOTE.—German statistics include Gutta-percha, Balata, old rubber, and substitutes. Italian, French, and Austrian figures include Gutta-percha. The exports from the United States embrace the supplies for Canadian consumption.

* Commerce General.

a Corrected figures

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